GUIDELINES FOR A QUALITY BUILT ENVIRONMENT
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INTRODUCTION

Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction and skillful execution; it represents the wise choice of many alternatives.

- William A. Foster

The purpose of these guidelines is to help ensure that Bureau of Land Management (BLM) facilities are attractive, functional, and sustainable. To accomplish these objectives, this guidebook:

1. Integrates guidance from related programs, directives, and best management practices.
2. Establishes easy-to-use design guidelines for a variety of different facility types.
3. Addresses a diversity of settings that are representative of BLM public lands.
4. Presents a process for planning and design on BLM lands.
5. Provides real examples of quality BLM projects for reference and guidance.

This effort to enhance the built environment affirms BLM’s commitment to sustainable facilities that support the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations. This guidebook is a valuable resource to assist BLM in creating quality built facilities.
INTRODUCTION

Arctic Interagency Visitor Center, Alaska

GQBE: GUIDELINES FOR A QUALITY BUILT ENVIRONMENT

GUIDELINES

This document establishes a clear planning process for Bureau of Land Management facilities and is intended to be used as a guide during the design process. Use of these guidelines will ensure that all BLM facilities meet the same high standard and that all BLM facilities represent a quality built environment.

The GQBE focuses on design guidelines for facilities that BLM regularly builds. The guidelines are divided into four categories:

- Site
- Recreation Facilities
- Structures & Associated Spaces
- Site Fixtures

The guidelines are intended to provide direction, yet stay fairly broad. They outline a thoughtful approach to planning and design that can be applied to any project regardless of scale or location. This approach allows for the flexibility to develop an appropriate design solution within a variety of settings. It will result in planning and design solutions that are responsive to the unique environmental and cultural circumstances presented by a particular site.

The GQBE does not address authorized land uses of non-BLM facilities (i.e., communication sites, energy developments, etc.). Direction for those types of projects is contained within other agency guidance, although many of the principles conveyed in the guidelines would be applicable. The GQBE does not provide "cookie-cutter" solutions or detail specific instructions such as which materials to use for a given type or project or which family of site furnishings to select. It does, however, address how to make those decisions. Instead of providing specifics, the guidelines detail a planning framework, emphasizing the site planning process, within which all BLM facilities should be designed and constructed.

QUALITY

Quality is difficult to define but easy to recognize. For the purposes of this document, quality is defined as excellence. Quality implies a sincere commitment to attaining the highest practical standard.

With regard to a quality built environment, several attributes must apply. A quality BLM facility is one that is:

- Responsive to its particular place and setting
- Environmentally and culturally sustainable
- Functional and attractive to both staff and visitors
- Universally accessible
- Economically responsible, taking into account long-term costs associated with maintenance
- Beneficial to public health and well-being.

BUILT ENVIRONMENT

The term "built environment" refers to the constructed surroundings that provide the setting for human activities. The built environment is all around us; it is the world that we inhabit every day. It includes the houses and offices where we live and work as well as the outdoor spaces where we relax and play. Our perceptions about the built environment—how it looks, how well it is maintained, whether it feels safe—influence our ability to develop a deep attachment to a particular place and ultimately our desire to preserve and protect it.

The built environment of our public lands includes facilities such as campgrounds, roads, trails, picnic areas, visitor centers, comfort stations, and maintenance yards. This collection of built elements greatly influences how visitors experience public lands and how they regard BLM. Everything that is built conveys a message to the public about the values and mission of BLM and helps to cultivate a long-term relationship between the public and the public lands the agency manages.
WHY ARE THESE GUIDELINES NEEDED?

Over the course of its history, BLM staff and contractors have designed and built many excellent facilities on public lands. Unfortunately, not all facilities can be held up as models of excellence. Deteriorating materials, mismatched site elements, inadequate budgets, and impromptu improvements all contribute to inferior facilities. By providing the necessary resources and tools to both staff and contractors, BLM can improve the quality of design solutions and provide a consistent level of excellence for all BLM facilities. Using these guidelines will not only improve the design and efficiency of BLM facilities, it will also help create a positive impression upon the visiting public.

The GQBE should be used by all involved in the BLM facility development process, whether staff, contractors, or volunteers. It provides guidance not only for new construction, but also for redevelopment and renovation projects.

These guidelines establish a foundation for design and planning by:

- Providing a brief written history of BLM and conveying an understanding of the agency’s design heritage
- Instilling a sense of pride and understanding of the history and future of BLM
- Establishing a clear and consistent vision and set of goals for BLM built environments
- Assisting in the analysis of landscape and architectural character and how to integrate design solutions with them
- Describing an appropriate and sustainable application of accessibility requirements
- Identifying quality design techniques and materials.
- Recommending appropriate green building materials and systems and various ways to reduce the impact of the built environment

WHO DEVELOPED THE GQBE?

Developing the GQBE has provided an opportunity to reconsider the image of BLM and to solidify the agency’s commitment to quality design. This document is the direct result of input from many BLM stakeholders. Over a series of workshops, these stakeholders helped to define the foundation of the document and to review it as it evolved. Those in attendance represented a variety of disciplines and hailed from a wide range of geographic areas.

With assistance from BLM, Belt Collins, a landscape architecture, engineering, communication design and planning firm, was contracted to facilitate and synthesize the discussions that took place. These guidelines represent the culmination of those discussions. This collaboration between professionals from diverse disciplines and geographies enables the document to provide guidance on a wide variety of facilities throughout BLM.
WHO SHOULD USE THE GQBE?

The GQBE was developed as a resource for all those involved in planning, designing, funding, building, or maintaining BLM's built environment. Quality is everyone's responsibility, and this document addresses a wide variety of topics ranging from the creation of healthy work environments to the design of campgrounds and trails. Whatever the facility being built, the GQBE can be turned to for guidance.

WHAT IS INCLUDED IN THE GQBE?

**Chapter 1: Introduction** explains the purpose and need for developing the GQBE as well as who was involved and how and by whom it is to be used.

**Chapter 2: History** reviews the history of the agency and its design heritage.

**Chapter 3: Vision and Goals** summarizes the vision and goals set forth to achieve the desired level of quality for facility development.

**Chapter 4: Landscape Context** outlines a process to be followed to identify and thereby respond to ecological, cultural, and landscape characteristics of a particular site.

**Chapter 5: Planning and Design Process** walks through each step of the process, from land use planning to construction and maintenance, assigning responsibilities to those involved. It does this via graphics as well as by detailing each stage of the process for several projects of various scales.

**Chapter 6: Design Guidelines** highlights planning and design principles for an array of BLM projects, ranging from large administrative buildings to small kiosks. Images, graphics, and simple notes are used to convey much of this information in an easy-to-digest fashion.

**Appendices** include a GQBE Project Worksheet, references, acronyms, and acknowledgments. The Worksheet allows for documenting the project planning and design process from beginning to end, creating a reference to ensure its quality for the life of the facility.

HOW SHOULD THE GQBE BE USED?

The GQBE is formatted as a flip reference. The chapters are color-coded along the edge to allow quick location of the appropriate chapter. The GQBE should be referenced during all phases of facility planning and design as well as during construction and maintenance. It provides direction to everyone involved in facility development and can help facilitate conversation amongst internal staff as well as with contractors, volunteers, and the public at large. The guidelines should be used to focus all stakeholders on ensuring that BLM facilities are of high quality and reflect an agency that respects the public lands it manages and the publics who use them.

*Everything that we build conveys a message to the public.*

- Allysia Angus

*If not us, who? If not now, when?*

- John F. Kennedy
A HISTORY OF BLM AND ITS BUILT ENVIRONMENT

THE ORIGINS OF BLM

In 1946, the Bureau of Land Management was brought to life through the marriage of two agencies in the Department of Interior: the General Land Office (GLO) and the Grazing Service. President Harry Truman presided over the union by including the proposed merger in a plan he submitted to Congress.

Established in 1812, the General Land Office was formed to administer the “public domain,” the vast expanse of Federally held lands west of the Appalachian Mountains. The GLO’s primary purpose was to dispose of these lands—to oversee their transfer into private ownership in order to encourage economic development and settlement in the American West (Tisdale and Booth 1998, 1). Most of this land eventually landed in the hands of private citizens, corporations, and the states. Of the remainder, a sizable portion became national parks and monuments, wildlife refuges, or national forests. Those lands not claimed for these purposes by 1946 were inherited by BLM. These circumstances gave rise to the notion that BLM administers “the leftovers”—the lands that nobody wanted. While the quality of today’s BLM managed public landscapes certainly suggests otherwise, it has been difficult for BLM to dispel this reputation (Allen 2002, 189).

In 1934, during the environmental catastrophe of the Dust Bowl, President Franklin Delano Roosevelt signed into law the Taylor Grazing Act, thus setting the stage for the creation of the Grazing Service. Prior to the Act’s passage, ranchers had appropriated a huge percentage of public lands in the West for grazing. By the early twentieth century, millions of acres were severely overgrazed. The Act’s primary objective was to heal these lands.
and promote better management of the rangelands. It closed most public land to new settlement and gave the Secretary of Interior authority to place millions of acres into grazing districts. The responsibilities of the GLO and the Grazing Service were intertwined, however, creating a confusing situation for land managers and land users alike. This fact contributed to the merger that created BLM.

**AN AGENCY IN SEARCH OF AN IDENTITY**

At its inception in 1946, BLM inherited a daunting task. The fledgling agency was charged with enforcing thousands of laws and regulations—many of which conflicted with each other—not to mention the job of managing one third of the Nation’s land. When Congress formed BLM, it simply combined the GLO and the Grazing Service without clearly defining the new agency’s purpose. There was substantial tension between the old objective of land disposal and the newer one of land management. BLM during this period has been characterized as “an agency in search of an identity” (Muhn and Stuart 1988, 54).

With its emphasis on extractive uses and grazing, BLM stood in stark contrast to other land management agencies. Over the next several decades, BLM developed a reputation for accommodating the interests of miners and ranchers. Conservationists protested what they viewed as poor management. They decried environmental degradation occurring on public lands and derided BLM as the “Bureau of Livestock and Mining.”

The 1960s brought fundamental changes to BLM as the environmental movement gathered steam across the nation. During the tenure of Secretary of Interior Stewart Udall, BLM management emphasized the importance of planning in order to meet the nation’s long-term needs. BLM increased resource inventories of resources on public lands and invited the public to help determine how these resources should be managed. By the end of the decade, Congress and BLM had begun to better recognize the unique values of BLM lands, and to protect these values by designating special management areas—natural areas, recreation lands, and national conservation areas (Muhn and Stuart 1988, 105-106).

The Federal Lands Policy and Management Act (FLPMA), known as BLM’s ‘Organic Act’, became law in 1976 and identified multiple use, sustained yield, and environmental protection as the guiding principles for management. Through this legislation, Congress provided the BLM with a clear mission and removed most of the legal conflicts that had long burdened the agency. Under FLPMA, public lands were to be retained in public ownership and managed so that scientific, scenic, historical, environmental, and archeological values would be preserved. Furthermore, it dictated that BLM lands be inventoried for potential inclusion in the nation’s wilderness system, just as those under the management of the National Park Service (NPS) and U.S. Forest Service (USFS) (Allen 2002, 57).

In recent decades, conservation and recreation have become

**A CLEAR MISSION FOR BLM**

...
increasingly central to BLM’s mission. In the 1990s, Secretary of Interior Bruce Babbitt was a powerful voice for BLM. Babbitt was influential in President Clinton’s decision to establish Grand Staircase-Escalante National Monument, a new model for BLM. In the past, when national parks and monuments were established, management passed from BLM to the National Park Service. By contrast, Grand Staircase-Escalante remained under the jurisdiction of BLM. Babbitt believed that the agency should “have a sense of pride rather than…a bunch of inventory in the garage that is discovered and given to someone else” (Allen 2002, 163).

Additional BLM national monuments have been established since Grand Staircase-Escalante National Monument was established. These special places protect and raise awareness for spectacular natural landscapes, rare plant and animal communities, and outstanding archeological and paleontological resources. Suddenly “the lands nobody wanted” are drawing legions of new visitors and being recognized for their exceptional values. Christened the National Landscape Conservation System (NLCS), these BLM lands include national conservation areas and similar congressionally designated conservation areas, as well as national monuments, wilderness and wilderness study areas, wild and scenic rivers, national scenic and historic trails, and conservation lands of the California Desert. The NLCS was legislatively established through the 2009 Omnibus Public Land Management Act, affirming the importance of the System and its mission.

Totaling approximately 27 million acres, the NLCS includes some of the West’s most spectacular landscapes and outstanding recreational opportunities. It includes some of the nation’s most remote landscapes as well as extraordinary areas within close proximity to busy urban centers. The BLM manages these areas to protect their special values for the enjoyment of current and future generations.

AN INCREASING EMPHASIS ON CONSERVATION AND RECREATION

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

-Federal Land Policy and Management Act
HISTORY OF DESIGN

As the West grows ever more populated, Americans increasingly rely upon BLM lands for recreation. A broad spectrum of recreational uses occurs on public lands, including hiking, fishing, horseback riding, and driving off-highway vehicles. These uses point to a growing need for visitor facilities of all types. Yet, in contrast to other land management agencies, BLM does not have a long history of design or an established design philosophy.

During the 1920s and 1930s designers in other land management agencies, such as the National Park Service and U.S. Forest Service, formulated a comprehensive philosophy for design in natural areas. Underlying this philosophy was the principle that man-made features should be subservient to the natural environment. In practice, this teaching gave rise to a distinctive style of architecture, engineering, and landscape architecture that came to be known as the Rustic Style. The Rustic Style stressed the use of native materials, irregular massing, and carefully crafted details in order to harmonize buildings, trails, and other man-made features with their natural and cultural settings. During the Great Depression, the style was applied to projects in national forests, national parks, and state parks. Crews of Civilian Conservation Corps (CCC) laborers built hundreds of such facilities, typically working under the direction of a designer. Successful examples were compiled into design guidelines, which were widely distributed for others to emulate. These documents laid the foundation for facility design in natural environments managed by the NPS and USFS. Such documents promoted the belief that design mattered and helped these agencies develop a unique and recognizable style. Buildings and facilities constructed during this period improved the visitor experience and helped to define the image of a national park or national forest.

In contrast, a culture of design has not taken hold within BLM to the same degree. BLM was formed after World War II, just as the Rustic Style was beginning to be phased out in favor of a more modern aesthetic. Likewise, the fact that BLM manages more land with fewer people and less financial resources may also be a contributing factor to the lack of a strong design culture. Regardless of the reason, the result has been that quality and consistent planning and design has not always been a priority. Therefore, an important purpose of these guidelines is to foster and nurture a strong design culture within BLM.

Upper Centennial Resource Conservation Area, Arizona

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969</td>
<td>Passage of the National Environmental Policy Act (NEPA) required Federal agencies to assess environmental impacts of actions and mitigate adverse effects.</td>
</tr>
<tr>
<td>1970</td>
<td>King Range National Conservation Area (CA), first NCA, created.</td>
</tr>
<tr>
<td>1978</td>
<td>Iditarod National Historic Trail (AK), BLM's first National Historic Trail, designated.</td>
</tr>
</tbody>
</table>
BLM manages more than a quarter billion acres of public lands throughout the western continental U.S. and Alaska, an eighth of the total surface area of the nation. This equates to more than double the total acreage of the national forests, and one and half times the acreage of the national parks and wildlife refuges combined. To manage this vast amount of public land, BLM receives less than $4 an acre, compared to budgets that range from two to six times that amount for the U.S. Forest Service, U.S. Fish and Wildlife Service, or National Park Service.

Ten of the twelve fastest growing states in the country are in western states with significant proportions of BLM lands, increasing the demand from the public for everything from recreation to energy development. Thus, increasing demand for use of BLM lands, combined with limited budgetary support and very few design professionals within the ranks of the agency, exemplifies the need for these guidelines.

Policy now requires Federal buildings to meet goals related to reducing life cycle costs; improving energy, water, and materials conservation; providing healthy and productive work environments; and promoting environmental stewardship. In recent years, BLM staff and contractors have designed and built many quality facilities by referencing existing guidance related to sustainable development, visual resource management, and accessibility. In particular, BLM is emerging as a leader in sustainable design and green building.

The Craig Field Office (CO), Rawlins Field Office (WY), Escalante Interagency Visitor Center (UT), the Utah State Office (a leased facility), and the renovation of the Cleveland-Lloyd Dinosaur Quarry Visitor Center (UT) are recent BLM projects that meet these heightened standards and have garnered praise and awards from the U.S. Green Building Council and other organizations. These projects employ innovative techniques to reduce energy and water use, generate energy from sustainable on-site sources, recharge groundwater aquifers, and use recycled and/or locally harvested materials, thus signifying a new and promising direction for BLM.

Unfortunately, not all of the agency’s existing facilities can be held up as good examples of quality design. From the first moment a visitor enters public lands, the visual appearance of BLM facilities and the surrounding landscape begins to form impressions. Every component of the built environment is an opportunity to communicate a clear and consistent message about BLM’s stewardship of the land and the relationships between people and place. Every site feature, no matter how seemingly minor, in concert with the whole, can instill a respect and care for the landscape, the history and culture of an area, and the agency’s commitment to sustainable development. Whether it is the manner in which a campground or picnic area fits into the landscape setting, or the color, materials, and placement of seemingly everyday site elements such as trash cans, benches, or signs, BLM’s built environment reflects the agency’s image and identity.

The GQBE provides clear direction for facility design and development that contributes to a quality built environment for BLM—one that will reflect positively on the agency for years to come.

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**A BRIGHTER FUTURE FOR DESIGN**

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**Blodin Field Office (CO)**

**Bentley Field Office (OR)**

**Buffalo Field Office (WY)**

**Cheyenne Field Office (WY)**

**Denver Field Office (CO)**

**Ft. Benton, Montana**

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**1980**

Yaquina Head (OR)
Outstanding Natural Area, BLM’s first DNA established.

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**1983**

Bear Trap Canyon (MT)
Wilderness, BLM’s first Wilderness Area designated.

---

**1996**

Grand Staircase-Escalante National Monument (UT), BLM’s first National Monument, designated.
Lands that were too parched for row crops, too steep, or otherwise undesirable became part of the public domain. What once could be called 'the lands no one knows' inevitably become the lands that everyone covets.

- John G. Mitchell
National Geographic, August 2001
CHAPTER 3

VISION AND GOALS
A vision for BLM's built environment was developed in the early planning stages of the GQBE. Through a series of workshops and meetings, internal and external stakeholders collaborated to refine that vision. Those in attendance represented a range of professions, backgrounds, and geographic locations related to their experience with BLM facility development.

The vision translated into goals that provide a framework on which to fashion the guidelines. These over-arching goals outline a broad philosophy for the planning and design of BLM’s built environment:

- Sustainable
- Attractive
- Functional
- Cost Effective
- Responsive to Place and Setting

The themes of quality, safety, and accessibility signify the core values within each goal and represent the three pillars upon which each goal is successfully accomplished.

This chapter explains the goals in more detail and draws connections to related programs and directives. In recognizing these goals, all projects, regardless of scale or budget, can be elevated to a place that represents quality within the built environment.

*Consult the genius of the place in all.*

- *Alexander Pope*
**VISION FOR A QUALITY BUILT ENVIRONMENT**

In support of our responsibility to manage diverse landscapes and multiple uses, BLM will provide safe and accessible facilities for the public and its employees that are sustainable, attractive, functional, cost-effective, and responsive to place and setting.

**SUSTAINABLE**

BLM facilities will be designed and constructed with sensitivity to natural systems, to be durable, to require low maintenance, and to embody the efficient use of energy, materials, water, and other resources.

Sustainability is a concept that “recognizes that human civilization is an integral part of the natural world and that nature must be preserved and perpetuated if the human community is to sustain itself” (NPS 1994). This concept is at the heart of BLM’s mission; therefore, BLM should present models of sustainability in the built environment.

A sustainable development exemplifies the principles of conservation through a cohesive integration of buildings, site, and landscape. Buildings employ a high-performance core and shell, highly efficient mechanical and electrical systems, environmentally responsible materials, renewable energy sources, healthy indoor air quality, and other appropriate methods to reduce their environmental footprint. Sustainable sites respect natural systems, including soils, water, air, plant, and animal communities, honoring each site as a functioning component of a larger ecosystem.
In recent years, the Federal Government has strengthened its commitment to environmentally responsible practices such that green building is no longer merely a worthy objective but also a requirement. BLM and other Federal agencies are subject to executive orders and policies concerning a range of green building practices.

For additional information on sustainable design, consult these sources:

- Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance. The Executive Order requires Federal agencies to set 2020 greenhouse gas emissions reduction targets increase energy efficiency, reduce fleet petroleum consumption, conserve water, reduce waste, support sustainable communities, and leverage Federal purchasing power to promote environmentally responsible products and technologies.

- This Memorandum of Understanding (MOU), Federal Leadership in High Performance and Sustainable Buildings. This MOU, signed in 2006, established a commitment from all signatory departments and agencies, including the Department of the Interior, to exhibit Federal leadership in the design, construction, and operation of High-Performance and Sustainable Buildings. Included in the MOU are guiding principles related to optimizing energy performance, conserving water, improving indoor environmental quality, using integrated design, and reducing the impact of materials.

- U.S. Green Building Council (USGBC; www.usgbc.org). The U.S. Green Building Council is a nonprofit organization that promotes sustainable design and administers the Leadership in Energy and Environmental Design (LEED) rating system.

- National Park Service Guiding Principles of Sustainable Design 1993 (www.nps.gov/dsc/d_publications/d_1_publications.htm). This resource provides a thorough discussion of sustainable design.

- The Sustainable Sites Initiative™ (SITES™; www.sustainablesites.org). SITES is an interdisciplinary effort by the American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center at The University of Texas at Austin, and the United States Botanic Garden to create voluntary national guidelines and performance benchmarks for sustainable land design, construction, and maintenance practices.

See Appendix E - References (pg. 207) for a comprehensive list of green building references and sustainability mandates.

*The first rule of sustainability is to align with natural forces, or at least not try to defy them.*

- Paul Hawken

**ATTRACTIVE**

BLM will construct and maintain an attractive built environment that projects an image of quality, value, and permanence.

Public lands are home to many spectacular landscapes. BLM’s primary tool for protecting these scenic values is the Visual Resource Management (VRM) system. VRM measures the visual contrast created between built facilities and the natural setting rather than judging aesthetic quality. VRM is a systematic process for evaluating and managing the visually detectable change to the natural landscape. One basic premise of VRM is that projects that repeat the design elements of the surrounding landscape (characteristics of form, line, color, texture, and scale) tend to be in harmony with the environment, whereas those that do not reflect the local influences create visual contrast and should be avoided.
Even though style and form may vary based upon the landscape setting in which they occur, all facilities will convey quality workmanship, materials, and design. Likewise, how well something is maintained also conveys to the public the importance and worth of the resource. A well-designed and maintained facility engenders a sense of value to both staff and visitors. An attractive facility will project a sense of permanence so that both built facilities and the natural resources surrounding them will be respected and valued for years to come.

Form follows function—that has been misunderstood. Form and function should be one, joined in a spiritual union.

- Frank Lloyd Wright

**FUNCTIONAL**

**BLM facilities will perform well in the capacity for which they were intended. They will be safe, accessible, and enjoyable to use, contributing to a rewarding experience for visitors and employees alike.**

Functional BLM facilities are those that respond to stated purposes, whether recreational, informational, utilitarian, or, as is often the case, a combination of purposes. Functional facilities meet the needs of all intended user groups. Understanding not only the purpose but who will be using the facility is key to planning and designing a functional built environment. For example, what is deemed appropriate for a busy visitor center, may not be applicable to a remote trailhead. Understanding the purpose and the intended users of a particular facility allows planners and designers to craft a functional facility that is safe, accessible, and pleasant to experience.

The design philosophy that “form follows function” is applicable to BLM's built environment in that planners and designers should strive to understand how to efficiently and cost effectively provide adequate facilities relative to the purpose and intended users. Simple design solutions that function well are more successful than complex designs that fail to meet the needs of the day-to-day facility management needs and use. Even though functional design is often not readily recognizable to the user, it helps to create a sense of comfort and safety that contributes to a positive user experience and encourages repeat visitation.

**Our greatest responsibility is to be good ancestors.**

- Jonas Salk
BLM facilities will be financially responsible and include a consideration for whole-life costs. Appropriate investment of resources during design will advance both the quality and cost effectiveness of BLM’s built environment.

As a public land management agency, BLM has an obligation to use financial resources wisely. Prudent financial planning assures funding is available for both initial design and long-term management. Thinking in terms of life cycle or “whole-life costs” is an important step to achieving a cost-effective built environment. The primary value of whole-life costing is that costs that occur after an asset has been constructed or acquired, such as maintenance, operation, and disposal, become an important up-front consideration in decision making.

When whole-life costs are not considered, initial savings may result in increased expenditure throughout the asset’s life. When considering whole-life cost, value is rarely achieved through hasty design and lowest cost construction. Rather, quality of design and construction are emphasized. The aim of the GQBE is to help create places that last not only because they are durable and well constructed but because they evoke a timeless quality that will not feel dated within a few years. This idea of creating lasting value is the cornerstone for a new paradigm at BLM, one which emphasizes quality over lower initial design and construction costs.

Proper allocation of funding for new or existing facilities sets the stage for a quality built environment. Preliminary budgeting can set a project up for whole-life success. If sufficient funding is available, a project has a better chance of achieving a quality outcome. Conversely, if inadequate funding is available, a project will undergo shortfalls in various stages of the process, including quality of design, materials, operation, and maintenance. It is important that decisions regarding funding take into account the needs that a facility will have both now and in the future. Funding allocation should consider that it is better to do less very well. This approach will ensure that all BLM facilities contribute to a quality built environment.

“Nature holds the key to our aesthetic, intellectual, cognitive, and even spiritual satisfaction.”

- Edward O. Wilson
BLM facilities will be designed to harmonize with the environments they are located within, fully integrating with their unique natural and cultural settings.

BLM promotes and encourages the philosophy of context-sensitive design: the idea that in every case, the design solution should derive from the unique setting and particular set of circumstances. No matter what is to be built, design should respect the natural, cultural, and social context, from both an aesthetic and a functional standpoint. A quality built environment creates a sense of place.

BLM facilities should be environmentally responsible and should protect the night sky, topographical features, and hydrological systems. Structures, roads, and amenities should be seamlessly built into the landscape features, matching shapes, colors, and materials found in the vicinity. Development of facilities should not encroach on natural drainage and waterways.

Facilities should be responsive to regional, and site-specific climate patterns. Passive-solar orientation, a key sustainable strategy, is one of the most cost-effective energy-saving techniques available. Creating comfortable spaces both indoors and outdoors is as beneficial for a picnic area as it is for a visitor center.

BLM facilities should be in harmony with the form, line, color, and textures found in the surrounding landscape. BLM’s Visual Resource Management (VRM) system should be utilized to help develop proper siting and design solutions accordingly so that all facilities meet established VRM objectives in the respective Resource Management Plan (RMP).

A quality built environment also recognizes the value of history and culture. Incorporating the vernacular is one way to interpret local stories; therefore design of features may reference past or present cultures and/or local architectural traditions. When located in cities or towns, BLM facilities should complement the architectural character of the surrounding community and offer practical benefits to residents. For instance, the vernacular architecture of rural barns may help influence roof design while the historic split rail fences or rock walls may inform design solutions for property perimeters.

Responsiveness to place and setting must also consider the range of access needs for all users. Creating a barrier-free environment in every facility type is challenging, but achievable. Irrespective of the setting or type of facility, equality is expressed on BLM lands through dedication to accessible design. A quality built environment provides creative integration of the best practices and regulations pertaining to accessibility in a manner that respects the character of the setting while providing for a safe and comfortable visitor experience.
CHAPTER 4

BLM LANDSCAPE CONTEXT
WHAT IS LANDSCAPE CONTEXT?

An understanding of the landscape in which a facility will be constructed is the first and most important step in creating a quality built environment. The term “landscape context” describes the ecological and cultural forces that define and shape the natural and built environment, as well as the landscape character settings that contribute to the physical appearance of an area. In essence, landscape context refers to the character of place.

Quality BLM facilities demonstrate a conscious response to landscape context. These built environments are often comfortable, and the visitor experience of these facilities is strengthened by careful attention to the architectural and landscape character of the region. Also, facilities that respond to landscape context can be more cost effective through the use of local materials and construction techniques, and are likely more functional in that design solutions are informed by local climate and ecological considerations.

LANDSCAPE SETTINGS

The nation’s public lands represent a staggering array of diverse and often unique landscape settings. It is important to evaluate the distinctive ecological and cultural forces at play at a particular place in order to understand the landscape setting embodied by these forces. Although hundreds, if not thousands, of distinct landscape settings make up this collection, it is helpful to identify some of the key landscapes that broadly capture the character and qualities embodied by BLM managed public lands. The following landscape settings reflect this geographic and ecological diversity: deserts, forests, plateau and canyonlands, mountains, plains and grasslands, and coasts.
LANDSCAPE CONTEXT

DESERTS

FORESTS

PLATEAU & CANYON LANDS

MOUNTAINS

PLAINS & GRASSLANDS

COASTS
HOW TO ESTABLISH LANDSCAPE CONTEXT

The following pages explain how to recognize primary influences contributing to the landscape context of an area so that these influences can inspire and inform the site planning and design of BLM’s built environment. Those involved in the development of BLM facilities should complete the analysis outlined in this chapter prior to moving into the design phase of any project. Completing this assessment in the early planning phases of a facility provides a solid understanding of the landscape context upon which all phases of subsequent design (site planning, conceptual design, master planning, and construction details) can be completed.

This section is organized into three analysis areas: ecological influences, cultural influences, and landscape character influences. Combined together, these three analysis areas embody the landscape context for a particular site.

Ecological Influences
Ecological influences are expressed through the physical and biological attributes and process of the landscape, such as vegetation, topography, geology, hydrology, soil, climate and wildlife.

Cultural Influences
Cultural influences are expressed through the social and cultural values of a region as well as the human uses of the land, such as farming, ranching, industry and commerce, resource management, and art.

Landscape Character Influences
Landscape character influences can be analyzed by synthesizing the ecological and cultural influences of the surrounding landscape into the dominant patterns that make up the whole. These dominant patterns can be described in terms of four landscape character elements: form, line, color, and texture.

In order to establish the landscape context for a particular project, look beyond the boundary of a particular project area to better understand the regional patterns that influence the site. Understanding how a particular location relates to these regional influences is essential to understanding how the built environment should respond to the site, and helps ensure that the design will be well integrated into broader patterns of landscape and culture.
Landscape character influences of a particular region emanate from the natural elements in the landscape. These include native vegetation, topography, geology, hydrology, soils, wildlife habitats, precipitation, prevailing winds, and solar orientation and exposure. Landscape character influences should inform design responses that include paint color, material choice, color selection, architectural style, building massing and siting, composition of space, and trail and road alignment.

Ecological influences are expressed through physical features, natural processes, biological attributes, and regional characteristics of the landscape. These include native vegetation, topography, geology, hydrology, soils, wildlife habitats, precipitation, prevailing winds, and solar orientation and exposure. Ecological influences may inform design responses that include material selection, plant palette, green strategies, roof pitch, building orientation, set-back distances, and natural forms (biomimicry).

Cultural influences of a particular region are shaped by human values and uses of the land, such as settlement patterns (rural, suburban, urban); art and architecture (prehistoric, history, contemporary); agriculture (farming, ranching); and industry (mining, timber harvest, energy production). Cultural influences may inform design responses that include building density, architectural style, site art, interpretive themes and exhibits, circulation patterns, and spatial relationships and viewpoints.

Landscape character influences of a particular region emanate from the natural elements in the landscape. Some landscape character influences to consider include the form, line, color, and texture of the native soil; vegetation; and geological formations; as well as the structural forms, drainage patterns, and horizon lines. Landscape character influences should inform design responses that include paint color, material choice, color selection, architectural style, building massing and siting, composition of space, and trail and road alignment.
DOCUMENTING LANDSCAPE CONTEXT

When studying the landscape of a particular site, identifiable patterns emerge which help to define the character of the built environment. Responses to these patterns can be expressed in the built environment through both the architecture and the site design. Planning and design solutions which respond appropriately to this specific character result in a quality built environment. The following pages are examples of BLM facilities which reflect a successful response to ecological, cultural, and landscape character influences.
**Cultural:** Traditional rip-gut fencing functions as site barrier while also evoking local ranching and pioneer history, providing a living interpretive element.

**Ecological:** Roof is designed to provide shade in summer and shed heavy snows in winter.

**Landscape Character:** Building mass, form and color blend with landscape setting.

**Landscape Character:** Local stone facade color blends with surrounding landscape.

**Ecological:** Drought-tolerant native plants are appropriate for place and require low maintenance.

**Cultural:** Petroglyph-inspired art is integrated into building facade, reflecting the local Paleo-Indian influences in the region.

**Cultural:** Stepped form and rough timber posts evoke Puebloan culture.

**Ecological:** Cultural wall forms and earth bag structure uses local, low-cost materials and is a thermal insulator.

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*Grand Staircase-Escalante National Monument*
*Cannonville Visitor Center, Utah*

*Sand Island Contact Station, Utah*
**Ecological:** Roof is designed to shed heavy precipitation in this rainforest setting.

**Cultural:** Posts incorporate carving detail inspired by traditional northwest Native American art.

**Landscape Character:** Sinuous line of walkway, railing, and wall mimics the natural undulation of the adjacent Salmon River.

**Ecological:** Native plant restoration enhances habitat and provides a buffer between parking area and visitor center.

**Cultural:** Building design takes cues from lines and forms of agricultural structures indicative of this area.

**Landscape Character:** Curvilinear walk simulates the winding Missouri River.

Cascade Streamwatch, Oregon

Pompeys Pillar National Monument Interpretive Center, Montana
When documenting landscape context for a particular facility, it is important to study the particular relationships between the ecological, cultural, and landscape character components and the applied built environment response. Often, it helps to create image boards to illustrate the relationship between landscape context and proposed designs. Documenting and studying the landscape context of a site lends support to the designs that follow. It provides a rationale for the selection of materials, the mass of the structures, and the repetition of forms. It creates support for the decisions that are made throughout the design process and helps produce successful design solutions.

The following examples illustrate the respective landscape context and successful built environment responses.

<table>
<thead>
<tr>
<th>LANDSCAPE CONTEXT</th>
<th>BUILT ENVIRONMENT RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock Art Panel, Utah</td>
<td>Sand Island Contact Station, Utah</td>
</tr>
<tr>
<td>Cultural Influence</td>
<td>Building facade incorporates artistic reproductions of petroglyphs</td>
</tr>
<tr>
<td>Lewistown Farmstead, Montana</td>
<td>Pompeys Pillar National Monument Interpretive Center, Montana</td>
</tr>
<tr>
<td>Landscape Character Influence</td>
<td>Building form reflects that of local vernacular architecture</td>
</tr>
</tbody>
</table>
**LANDSCAPE CONTEXT**

**BUILT ENVIRONMENT RESPONSE**

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**Landscape Character Influence**

- **Salmon River, Oregon**
  - Walkway reflects sinuous line of the adjacent Salmon River—the facility’s focus

---

**Ecological Influence**

- **Desert Tortoise**
  - Interpretive exhibits educate visitors about local wildlife and sensitive habitat

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**Cultural Influence**

- **Traditional Adobe Architecture, New Mexico**
  - Building mimics the adobe construction used in regional architecture

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**Interpretive Exhibits**

- **Salinas Pueblo Missions National Monument, New Mexico**
  - Visitor Center, Nevada

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ATTENTION TO DETAIL

A successful response to landscape context is often seen in the details of a project. The design of every detail of a project has bearing on the overall composition and response to the landscape context. Paying special attention to detail gives visitors to public lands a more authentic experience and projects thoughtfulness and quality at all levels of design.

The lists below identify common architectural and site components. Use these component lists to help identify details in the area and begin to create a design language to respond to the landscape context.

ARCHITECTURAL COMPONENTS

- Roof (pitch, shape, material, overhang)
- Windows (size, shape, construction, materials, layout)
- Doors (location, construction, materials, layout)
- Walls (construction, materials)
- Base (construction, massing, materials)

SITE COMPONENTS

- Surfacing (material, texture, color, pattern)
- Barriers (construction, materials, massing)
- Vegetation (location, species, massing, layout)
- Furniture (construction, materials, location)
PLANNING & DESIGN PROCESS

The Planning and Design Process is a systematic sequence of planning, design, and construction steps that, when followed, will produce a quality facility. Each step in the process flows smoothly into the next, and ensures informed decisions are made in a sequential order. In this way, tasks within each step are predicated on the successful completion of tasks in the previous step. The planning and design process presented in this section will assist in developing a quality facility. To further illustrate this process, four sample facility projects are examined. Each sample project varies in size and complexity in order to provide close comparisons to a variety of project types. The samples are meant to be used as guides only, because many variables exist among projects.
The planning and design process involves steps that begin at the larger land-use planning scale and continue through to the more detailed project construction stage. Within that spectrum, numerous individuals have important roles and responsibilities that influence the relative success of a project, as well as the ultimate visual impression left on the land through BLM’s facilities. These roles may vary with the type of project as well as within the steps of the planning and design process itself.

To achieve the goals and vision for BLM’s built environment, it is critical that those involved in the planning and design process understand their respective roles and the contributions they are uniquely positioned to make. This includes not only internal BLM staff at the field, district, and possibly state office levels, but also specialists from other agencies, partner organizations, or contractors.

Within BLM, these specialists could include recreation planners, engineers, landscape architects and architects, archeologists, hydrologists, ecologists or botanists, wildlife biologists, geologists, and more. Each may make significant contributions to a particular project. For instance, consultation with the hydrologist could help to identify hydrologic issues affecting placement of site structures, buffers from sensitive streams, or similar aquatic habitat protection issues. Or, it may be that the recreation planner can provide critical information regarding visitor use, patterns of recreation activities, and social expectations for landscape settings necessary to achieve desired outcomes. Similarly, consultation with the landscape architect and/or visual resource management specialist can be essential in helping to describe the landscape character components that help shape designs that complement their settings.

It is imperative that engineering staff, landscape architects, architects, and other specialists with project management, construction, and design experience collaborate early and often in the planning stage. The earlier this collaboration occurs in the planning and design process, the more successful the communication of ideas and possibilities for appropriate design solutions can be achieved. Such collaboration must also consider appropriate and creative solutions for providing accessibility for all users that is integrated into the planning, conceptual design, and design development stages, rather than being addressed as an afterthought.

Depending on the scale of a particular project, this collaboration may occur informally or may need to be formalized through a project and/or interdisciplinary team. In most cases, keepers of the specific natural resource data necessary in the site planning process are the aforementioned various resource specialists. Hence, it may be essential that these specialists be part of the project team(s)—both interdisciplinary teams for environmental analysis as well as project-specific design teams. In many cases, specialists will be involved in more than simply providing input to the land use, activity, or site planning efforts; they may also be project leads or even project managers, depending on the type of project and its level of complexity.

In any case, the importance of early, often, and continual collaboration amongst resource specialists cannot be overemphasized. Becoming familiar with the planning and design process will help ensure specialists can provide substantive input throughout and ensure attention to issues of sustainability, safety, health and well being, while also meeting BLM’s larger mission goals and resource-specific objectives.
LAND USE PLANNING

This “big picture” level of planning serves as a basis for future resource decisions. Land Use Planning documents contain information pertinent to the future guidance of a management area. This can include an analysis of the resources of the area; identification of land use suitability and capability; land acquisition and disposal needs; determination and designation of land use zones; and development of management policies, objectives, responsibilities, guidelines, and plans. Land Use Planning provides overall guidance for the management area. It sets the goals for the management area, establishes desirable use levels, identifies types of development and land uses, and finally, determines how all of this will be accomplished. Outcomes include Resource Management Plans (RMPs) that establish Special Recreation Management Areas and Extensive Recreation Management Areas, Visual Resource Management (VRM) Classes, and Travel Management Allocations. This is also the stage in which related planning initiatives (state, county, city comprehensive plans, etc.) should be incorporated.

ACTIVITY LEVEL PLANNING

Activity Level Planning details resource management activities, actions, and prescriptions for areas of emphasis within a management area identified during the Land Use Planning phase. These areas are subsets of the entire management area and could include Special Recreation Management Areas, byway corridors, or watersheds. When Activity Level Plans are completed for these areas, funding sources for future developments should be identified, including funds for not only construction, but also planning, design, and maintenance.

PROJECT PLANNING

During this phase, the initial planning for the proposed project occurs. The design program, a comprehensive list of facility requirements including the types and numbers of facilities needed, is developed in sufficient detail so that how design services will be provided and who will serve on the design team can be determined. A preliminary design and construction budget is generated based on data collection and site reconnaissance. At this level, data collection includes review of pertinent BLM documents, manuals, Land Use Plans, Activity Level Plans, and the GQBE document.
CONCEPTUAL DESIGN
The design team utilizes detailed site inventories, site analysis, geotechnical reports, and utility studies to develop a number of design options for review. Conceptual design places building and site facilities onto the site in various locations to generate a realistic layout of architectural, landscape, mechanical, electrical, and civil components. Conceptual design offers quick design solutions in order to generate comments and responses. Design concepts are evaluated with respect to GQBE principles, preliminary cost estimate, and the budget. Commonly, the green strategy goals of a project are established during conceptual design. Once a conceptual design option is approved, the determination is made as to whether the project will be constructed by BLM personnel or contractors, which dictates the level of plans and specifications needed.

DESIGN DEVELOPMENT
Further development of the approved conceptual design occurs in this phase. Preliminary drawings are refined to a level meeting architectural and engineering standards. The design is influenced by and evaluated with respect to the GQBE. Plans are detailed enough to allow for preparation of a Class B Cost Estimate. The appropriate types of construction and procurement procedures are determined.

CONSTRUCTION DOCUMENTS
Construction Drawings, Details and Technical Specifications are completed during this phase. Construction Documents (CDs) describe the quantity, quality, configuration, and size of all components of the design, and ensure the project is consistent with the design, program, budget, and schedule. If appropriate, agency agreements are finalized and a final cost estimate is produced.
PROCUREMENT / CONSTRUCTION

During this phase, the project is constructed by qualified BLM personnel or a contractor. If by contract, bid documents are produced and the package is prepared and advertised for a formal public bidding process. The project is constructed according to the construction drawings and specifications.

POST-CONSTRUCTION

The finished facility is made ready for operations and the project is completed. If constructed by a contractor, the project is turned over to BLM after final acceptance. Data are entered into the Facility Asset Management System (FAMS). As-built drawings are prepared and submitted for recording. BLM continues routine maintenance and condition assessments throughout the life of the facility.
Sample projects of varying complexity (fairly simple, moderately complex, most complex) are presented in the following pages. These sample projects offer guidance with not only understanding the phases of the planning and design process, but also identifying who is responsible for which phases and who should provide appropriate approvals along the way. NOTE: The term “design professional” refers to one formally trained to perform design work (e.g., architect, engineer, landscape architect).

**PROJECT SAMPLE 1 (simple)**

<table>
<thead>
<tr>
<th>LAND USE PLANNING</th>
<th>ACTIVITY LEVEL PLANNING</th>
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<tr>
<td><strong>RESOURCE MANAGEMENT PLAN REVIEW</strong></td>
<td><strong>ACTIVITY LEVEL PLAN REVIEW</strong></td>
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<tr>
<td>Reference Resource Management Plan (RMP) and other relevant land use plans (County Comprehensive Plan, City General Plan, etc.) for broad management direction and to ensure conformance with Plan decisions, goals, and objectives. In this case, the RMP includes decisions that call for providing visitor information, orientation, and interpretation.</td>
<td>In this case, an approved Recreation Area Management Plan identifies the need for improved interpretation and orientation at an existing trailhead. Installation of a trailhead kiosk is noted as an appropriate method to convey information.</td>
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</table>

**POTENTIAL FUNDING**

Potential funding sources are identified for project planning, design, construction, and maintenance. Preliminary cost estimate is prepared using cost data included in the FAMS.

Responsibility: Recreation Planner
Approval: Field Office Manager
TRAILHEAD KIOSK

IDENTIFY PROJECT LEAD
Field Office Manager assigns Project Lead.

FORM PROJECT PLANNING TEAM
Project Lead secures assistance from relevant BLM staff to include recreation staff, engineer, landscape architect, architect, interpretive specialist, maintenance staff, etc. These team members could work at the Field, District, or State level, or be with the National Operations Center, and some should transition to the Project Design Team.

NEPA INITIATION
Project-level NEPA is initiated, if needed.

SITE ANALYSIS
A basic site analysis is conducted to understand opportunities and constraints for installing a trailhead kiosk. Analysis components include vehicular/pedestrian circulation, views, natural features, vegetation, sun angles, etc.

USER PROFILE
A basic user profile is prepared to understand how the kiosk will be used and what information it should include to meet the needs of the users.

DEVELOP DESIGN PROGRAM
Using input from the Planning Team, Project Lead develops program document for proposed trailhead kiosk. What type of information should be displayed? Are there graphic design standards to follow? Are there size or style requirements for kiosk? The program should be detailed enough to clearly identify requirements while allowing flexibility in design.

Responsibility: Project Lead and Planning Team
Approval: Field Office Manager

PRELIMINARY BUDGET
Project Lead and Planning Team establish a preliminary budget for design and construction.

PRELIMINARY SCHEDULE
Project Lead and Planning Team prepare a preliminary schedule for completion and identify milestones.
## PLANNING & DESIGN PROCESS

### SAMPLE 1

**TRAILHEAD KIOSK**

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<tr>
<td><strong>CONCEPTUAL DESIGN</strong></td>
<td><strong>DESIGN DEVELOPMENT</strong></td>
<td><strong>CONSTRUCTION DOCUMENTS</strong></td>
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<tr>
<td><strong>FORM DESIGN TEAM</strong></td>
<td>For small-scale or simple projects, detailed design development may not be necessary, and the Project Lead may determine it appropriate to move directly to preparation of construction documents.</td>
<td><strong>CONSTRUCTION DOCUMENTS</strong> Design Team prepares construction documents. Kiosk is designed to ensure that footing design accounts for wind/snow loads and to meet accessibility guidelines.</td>
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<tr>
<td>The Design Team is made up of qualified BLM design and interpretive professionals (Field-, District-, State-level, or National Operations Center), many of whom will likely transition from the Project Planning Team.</td>
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<td><strong>RESEARCH</strong></td>
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<tr>
<td>Design Team reviews program document, relevant planning documents, GQBE, and other materials as needed for guidance and assistance on the layout, size, and style of kiosk. Identify good examples of quality kiosk designs to model.</td>
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<td><strong>ALTERNATIVE CONCEPTS</strong></td>
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<td>Design Team develops alternative design concepts for kiosk that explore different materials, orientations, sizes, etc.</td>
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<td><strong>PRELIMINARY COST ESTIMATE</strong></td>
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<td>Design Team develops Preliminary Cost Estimates for each alternative design concept.</td>
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<td><strong>SELECT PREFERRED CONCEPT</strong></td>
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<td>Based on feedback from Project Lead and Design Team, the Field Office Manager determines which concept to further refine.</td>
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<td><strong>GREEN STRATEGY GOALS</strong></td>
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<td>Green Strategy goals are determined for project development (i.e., sustainable material selection, recycling, etc.).</td>
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<tr>
<td><strong>NEPA COMPLETION</strong></td>
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<td>Project-level NEPA is completed, if needed.</td>
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<td><strong>DETERMINE WHO WILL BUILD</strong></td>
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<tr>
<td>Kiosks and other small projects may be constructed by BLM personnel, volunteers, partners, and/or contractors. Project Lead and Field Office Manager determine who will build trailhead kiosk.</td>
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<tr>
<td>Responsibility: Project Lead and Design Team</td>
<td>Approval: Field Office Manager</td>
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<tr>
<td>Approval: Field Office Manager</td>
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**Responsibility:** Design Team

**Approval:** Project Lead and/or Design Professional
# TRAILHEAD KIOSK

## PROCUREMENT/CONSTRUCTION

### PROCUREMENT
Method of procurement is dependent upon projected project costs. The Project Lead could purchase materials locally and construct kiosk using BLM staff and volunteers, or work with the Contracting Officer (CO) to issue a purchase order to hire a contractor for fabrication and installation.

### CONSTRUCTION
Project Lead inspects the work performed by either BLM staff, volunteers, or contractors to verify that kiosk is constructed to specifications in construction documents. Design Team remains available throughout construction for technical advice and consultation. Minor field adjustments may be made as site conditions dictate. If changes to design are made, final as-built drawings should be prepared.

## POST-CONSTRUCTION

### FACILITY ASSET MANAGEMENT SYSTEM
In coordination with Project Lead, the FAMS Data Steward enters relevant asset attributes into FAMS.

### MAINTENANCE
Ongoing maintenance is provided to ensure kiosk is attractive; serving the purpose intended, and, safe for users. Project Lead coordinates with appropriate BLM staff regarding future maintenance needs. Regular maintenance extends the life of the facility.

### Responsibility
- **FAMS (FAMS Data Steward):** FAMS Data Steward
- **Maintenance:** Field/District Office Staff

### Approval
- **Project Lead**
**NEW CAMPGROUND**

<table>
<thead>
<tr>
<th>LAND USE PLANNING</th>
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<tbody>
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</tr>
<tr>
<td>Reference Resource Management Plan (RMP) and other relevant land use plans (City General Plan, State Recreation Plan, County Comprehensive Plan) for broad management direction and to ensure conformance with Plan decisions, goals, and objectives.</td>
<td>In this case, an approved Recreation Area Management Plan identifies the need for additional developed camping opportunities and provides general locations within the management area where such facilities would be appropriate. Also included in the Plan are the maximum levels of development (e.g., numbers and types of campsites, whether potable water will be provided, whether fees will be collected, etc.).</td>
</tr>
<tr>
<td>In this case, the RMP includes decisions that allow overnight camping in both developed campgrounds and primitive campsites for a variety of users, depending on specific resource protection goals and objectives, location, and access.</td>
<td><strong>POTENTIAL FUNDING</strong></td>
</tr>
<tr>
<td>Potential funding sources are identified for project planning, design, construction, and maintenance. A preliminary cost estimate is prepared using cost data included in the FAMS.</td>
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</tbody>
</table>

Responsibility: Recreation Planner  
Approval: Field Office Manager
IDENTIFY PROJECT LEAD
Field Office Manager assigns as Project Lead someone with relevant project development experience.

FORM PROJECT PLANNING TEAM
Project Lead secures assistance from relevant BLM staff to include recreation planner, engineer, landscape architect, architect, interpretive specialist, maintenance staff, biologists, geologists, etc. These specialists could work at the Field, District, or State level, or be with the National Operations Center. Those who are design professionals should transition to the Project Design Team.

NEPA INITIATION
Project-level NEPA is initiated.

PUBLIC SCOPING
Stakeholders are engaged via formal (letters, surveys, meetings) and/or informal (site visits, conversations) methods to determine public support for project and any development/resource concerns they may have.

SITE ANALYSIS
A site analysis is conducted to understand opportunities and constraints for developing a campground. Analysis components include: vehicular/pedestrian circulation, views, natural features, sensitive habitat, riparian areas, vegetation, sun angles, potential trail connections, etc.

USER PROFILE
A user profile is prepared to better understand campground user needs, preferences, and the desired recreational outcomes. For what visitor experiences is it important to provide opportunities?

DEVELOP DESIGN PROGRAM
Using input from the Planning Team and stakeholders, Project Lead develops program document for proposed campground. Program should be detailed enough to clearly identify requirements while allowing flexibility in design.

GREEN STRATEGY GOALS
Green Strategy goals are determined for project development (e.g., water-efficiency, use of native plants, recycling, etc.).

PRELIMINARY BUDGET
Project Lead and Planning Team, in conjunction with the Field Office Manager, establish a preliminary budget for design, and construction.

PRELIMINARY SCHEDULE
Project Lead and Planning Team prepare a preliminary schedule for completion and identify milestones.

PROJECT DATA SHEET
A Project Data Sheet is prepared by Project Lead and Planning Team and submitted for Capital Improvements funding.

Responsibility: Project Lead and Planning Team
Approval: Field Office Manager
**NEW CAMPGROUND**

### CONCEPTUAL DESIGN

**FORM DESIGN TEAM**
The Design Team is made up of qualified BLM design professionals (Field-, District-, State-level, or National Operations Center), many of whom will transition from the Project Planning Team, and/or an Architectural Engineering (A/E) contractor.

**RESEARCH**
Design Team reviews program document, relevant planning documents, GQBE, and other materials as needed for guidance and assistance on the layout, size, setting, and character of the campground. Coordination with user groups to understand specific needs may be necessary. Reference other campgrounds that are good examples of quality design.

**ALTERNATIVE CONCEPTS**
Design Team presents design concepts to BLM and public stakeholders to solicit feedback.

**CLASS C PRELIMINARY COST ESTIMATE**
Design Team develops Class C Preliminary Cost Estimates for each alternative design concept.

### DESIGN DEVELOPMENT

**REFINE DESIGN**
Design Team refines the preferred design concept and finalizes major design decisions (e.g., number of sites, restrooms and other associated facilities, etc.). Project Lead coordinates review periods with Design Team and ensures that GQBE and other planning and design parameters have been integrated into design.

**VALUE ENGINEERING**
A formalized Value Engineering review is required if project is over $1M, and recommended if over $500K. Perform Value Engineering as needed to reconcile project with budget and create value through careful review of materials and life cycle costs.

**TYPE OF BID/CONTRACT**
Project Lead consults with procurement to determine which contract documents will be prepared for selected procurement process.

**CLASS B COST ESTIMATE**
Project Lead coordinates completion of Class B Cost Estimate with Design Team.

### CONSTRUCTION DOCUMENTS

**CONSTRUCTION DOCUMENTS**
Design Team completes Construction Documents to include drawings and specifications utilizing BLM standards. Project Lead coordinates review periods throughout process to ensure a complete and accurate construction package, as changes after this phase can be costly. A complete construction package is required whether project is to be constructed via contract or by BLM staff.

**LOCAL PLANNING/ZONING COORDINATION**
As appropriate, Project Lead coordinates the approval of project plans with local and state jurisdictions (i.e., departments of transportation, planning board, etc.) to ensure connections to existing utilities and services.
NEW CAMPGROUND

ASSIGNMENT OF CONTRACTING OFFICER REPRESENTATIVE (COR)/ PROJECT INSPECTOR (PI)
Field Office Manager selects qualified COR and PI. Project Lead typically serves as COR or PI.

BID PROCESS
Bid documents (bid schedule, construction documents, government estimate and specifications) are prepared for Contracting Officer (CO) to undertake Procurement Action. CO coordinates bidding with interested contractors. A pre-bid meeting is held several weeks prior to bid opening.

CONSTRUCTION CONTRACT AWARD
CO awards contract to successful bidder.

PRE-WORK MEETING
COR and PI conduct pre-work meeting to provide for clear and mutual understanding of contract requirements. Use meeting to identify and resolve issues with site conditions or contract documents.

CONSTRUCTION COORDINATION
COR and PI review contractor’s progress schedule, submittals, materials delivery, and other contractual obligations. COR ensures contractor adheres to contract while coordinating with CO. PI conducts inspections and documents progress during construction. Regular progress meetings are held on site with the contractor and subcontractors. COR approves payments, tracks schedules, reviews certified payroll, resolves conflicts, and communicates any issues related to contract progress or need for modifications to the CO.

WALK-THROUGH/PUNCH LIST
Near final construction completion, COR, PI, and key members of the Design Team conduct a walk-through and generate a punch list to correct any deficiencies.

FINAL TESTING
COR coordinates testing facility systems and components (e.g., sensor-operated lighting in restrooms, irrigation systems, etc.).

PROJECT DOCUMENTATION
Contractor provides contract closeout submittals, including as-built drawings, master keys, punch list check-off, operation and maintenance (O&M) manuals, and Final Payment Invoice for processing. Items provided by contractor to be filed/maintained by BLM facilities manager. COR and PI take photographs and prepare brief project summary, which includes project process, costs, and lessons learned.

PROJECT CLOSEOUT
Contracting Officer’s Technical Representative recommends project be accepted after punchlist items are remedied.

DEDICATION
COR coordinates with Public Affairs Officer to announce opening of new campground and host on-site dedication.

EVALUATE CONTRACTOR
COR and PI evaluate contractor performance.

FACILITY ASSET MANAGEMENT SYSTEM
In coordination with the COR and PI, the FAMS Data Steward enters relevant asset attributes into FAMS.

MAINTENANCE
Ongoing maintenance and condition assessments are provided to ensure safety and comfort of users. COR coordinates with appropriate BLM staff regarding future maintenance needs. Regular maintenance extends the life of the facility. In order to protect the facility from possible future competing developments, pursuing appropriate lands actions is considered, such as self-issued rights-of-way, and/or withdrawal from mineral entry.

** NOTE: This example assumes project is constructed by a contractor. If campground were to be constructed by BLM staff, the process would remain basically the same.

Responsibility (FAMS): FAMS Data Steward
Responsibility (Maintenance): Field/District Office Staff
### Field Office Rehabilitation

<table>
<thead>
<tr>
<th>Land Use Planning</th>
<th>Activity Level Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resource Management Plan Review</strong></td>
<td><strong>Activity Level Plan Review</strong></td>
</tr>
<tr>
<td>Reference Resource Management Plan (RMP) and other relevant land use plans (County Comprehensive Plan, City General Plan, etc.) for broad management direction and to ensure conformance with Plan decisions, goals, and objectives.</td>
<td>In this case, an approved Facilities Master Plan identifies the need to rehabilitate the existing field office administrative building. Per information in the Asset Management Plan (AMP), the Master Plan notes why the rehabilitation is needed, which improvements are needed to address deficiencies, and how space allocations are to be determined.</td>
</tr>
</tbody>
</table>

In this case, facility development and maintenance are addressed in the RMP in a general sense, but specific discussion of this project is not included.

**Potential Funding**

Potential funding sources are identified for project planning, design, construction, and maintenance. Preliminary cost estimate is prepared using cost data included in the FAMS.

**Responsibility:** Design Professional  
**Approval:** Field Office Manager
FIELD OFFICE REHABILITATION

IDENTIFY PROJECT MANAGER
Field Office Manager assigns a Project Manager, someone with relevant project development experience. NOTE: For projects over $2.0M, a Certified Project Manager is required.

FORM PROJECT PLANNING TEAM
Project Manager secures assistance from relevant BLM staff to include an architect, engineer, landscape architect, maintenance staff, etc. The design professionals could work at the Field, District, or State level, or be with the National Operations Center, and will likely transition to the Project Design Team.

PUBLIC SCOPING
Stakeholders are engaged via formal (letters, surveys, meetings) and/or informal (site visits, conversations) methods to determine public support for project and any development/resource concerns they may have.

SITE ANALYSIS
Planning Team conducts analysis to understand opportunities and constraints of the existing field office building and site. Potential opportunities could include increased parking, more water-efficient landscaping, better day-lighting, etc. Identification of constraints could include existing utility lines, adjacent properties, topography, etc. Analysis also identifies architectural and landscape character of the existing building, site, and area. Other analysis data may include soils data, existing vegetation, parking, and circulation.

USER PROFILE
Planning Team prepares a user profile to understand how the office is used and by whom, how many staff occupy the space, and what is needed for staff to perform their jobs.

DEVELOP DESIGN PROGRAM
Project Manager and Planning Team develop the program document in coordination with the Field Office Manager. Program should be detailed enough to clearly identify requirements while allowing flexibility in design. Program elements may include: storage and exhibit space, amount of additional parking, accessibility standards, outdoor gathering areas, cosmetic improvements, and water efficiency.

GREEN STRATEGY GOALS
Green Strategy goals are determined for project development (e.g., use of renewable energy, water-efficiency, use of native plants, recycling, etc.).

PRELIMINARY BUDGET
Project Manager and Planning Team, in conjunction with the Field Office Manager, establish a preliminary budget for design and construction.

PRELIMINARY SCHEDULE
Project Manager and Planning Team prepare a preliminary schedule for completion and identify milestones.

PROJECT DATA SHEET
A Project Data Sheet is prepared by Project Manager and Planning Team and submitted for Deferred Maintenance/Capital Improvements funding.
FIELD OFFICE REHABILITATION

1. CONCEPTUAL DESIGN

**FORM PROJECT DESIGN TEAM**
Design Team is made up of qualified BLM design professionals (Field-, District-, State-level, or National Operations Center), many of whom will transition from the Project Planning Team, and/or an Architectural Engineering (A/E) contractor.

**RESEARCH**
Design Team reviews program document, relevant planning documents, GQBE, and other materials as needed.

**ALTERNATIVE CONCEPTS**
Design Team develops alternative design concepts for field office rehabilitation. Conceptual designs explore room layout, parking configurations, pre-engineered versus on-site construction, options for accessibility, mechanical systems, etc.

**CLASS C PRELIMINARY COST ESTIMATE**
Project Manager oversees preparation of Class C Preliminary Cost Estimates for each alternative design concept.

**SELECT PREFERRED CONCEPT**
Based on feedback from Project Manager, Design Team, BLM staff, and stakeholders, the Field Office Manager determines which concept to further refine.

**GREEN PROGRAM REGISTRATION**
If applicable, Project Manager registers the project with the U.S. Green Building Council (USGBC) LEED program or similar.

**APPROVAL TO PROCEED**
Project Lead receives approval to proceed to design development from Field Office Manager.

2. DESIGN DEVELOPMENT

**REFINE DESIGN**
Design Team refines the preferred design concept, and finalizes major design decisions (e.g., number of parking stalls, number of meeting/conference spaces, etc.). Project Manager coordinates review periods with Design Team and ensures that GQBE and other planning and design parameters have been integrated into design.

**VALUE ENGINEERING**
A formalized Value Engineering review is required if project is over $1M, and recommended if over $500K. Perform Value Engineering as needed to reconcile project with budget and create value through careful review of materials and life cycle costs.

**TYPE OF BID/CONTRACT**
Project Manager consults with procurement to determine which contract documents will be prepared for selected procurement process.

**CLASS B COST ESTIMATE**
Project Manager coordinates completion of Class B Cost Estimate with Design Team.

**LOCAL PLANNING/ZONING COORDINATION**
As appropriate, Project Manager coordinates the approval of project plans with local and state jurisdictions (i.e., departments of transportation, planning board, city council, etc.) to ensure connections to existing utilities and services.

3. CONSTRUCTION DOCUMENTS

**CONSTRUCTION DOCUMENTS**
Design Team completes Construction Documents to include drawings and specifications utilizing BLM standards. Project Manager coordinates review periods throughout process to ensure a complete and accurate construction package, as changes after this phase can be costly.

**FINAL COST ESTIMATE**
Design Team develops Final Construction Cost Estimate (Class A) based on final construction documents.

**GREEN PROGRAM SUBMITTALS**
If applicable, ongoing documentation for LEED or similar programs is performed. Submittals to USGBC to be coordinated by LEED-accredited professional.

Responsibility: Project Manager and Design Team
Approval: Field Office Manager

Responsibility: Project Manager and Design Team
Approval: Field Office Manager

Responsibility: Project Manager and Design Team
Approval: Project Manager
FIELD OFFICE REHABILITATION

PROCUREMENT / CONSTRUCTION

ASSIGNMENT OF CONTRACTING OFFICER REPRESENTATIVE (COR)/PROJECT INSPECTOR (PI)
Field Office Manager selects qualified COR and PI. Project Manager typically serves as COR. For projects over $2.0M, a Certified Project Manager is required. If Project Manager does not serve as COR, close coordination during construction is required.

BID PROCESS
Bid documents (bid schedule, construction documents, government estimate and specifications) are prepared for Contracting Officer (CO) to undertake procurement action. CO coordinates bidding with interested contractors. A pre-bid meeting is held several weeks prior to bid opening.

CONSTRUCTION CONTRACT AWARD
CO awards contract to successful bidder.

PRE-WORK MEETING
COR and PI conduct pre-work meeting to provide for clear and mutual understanding of contract requirements. Use meeting to identify and resolve issues with site conditions or contract documents.

PERMITS/APPROVALS
If applicable, COR ensures contractor obtains necessary permits and approvals from local jurisdiction.

CONSTRUCTION COORDINATION
COR and PI review contractor’s progress schedule, submittals, materials delivery, and other contractual obligations. COR ensures contractor adheres to contract while coordinating with CO. PI conducts inspections and documents progress during construction. Regular progress meetings are held on site with the contractor and subcontractors. COR approves payments, tracks schedules, reviews certified payroll, resolves conflicts, and communicates any issues related to contract progress or need for modifications to the CO.

WALK-THROUGH/PUNCH LIST
Near final completion of contract, COR, PI, and key members of the Design Team conduct a walk-through and generate a punch list to correct any deficiencies.

FINAL COMMISSIONING/TESTING
COR coordinates testing of major systems. Commissioning includes mechanical systems, CO2 monitoring systems, energy performance, HVAC systems and associated controls, lighting and day-lighting controls, hot water systems, and renewable energy systems.

PROJECT DOCUMENTATION
Contractor provides contract closeout submittals, including as-built drawings, master keys, punch list check-off, operation and maintenance (O&M) manuals, and Final Payment Invoice for processing. Items provided by contractor to be filed/maintained by BLM facilities manager. COR and PI take photographs and prepare brief project summary, which includes project process, costs, and lessons learned.

PROJECT CLOSEOUT
Contracting Officer’s Technical Representative recommends project be accepted after punchlist items are remedied.

POST CONSTRUCTION

DEDICATION
COR coordinates with Public Affairs Officer to announce opening of rehabilitated facility, if warranted.

EVALUATE CONTRACTOR
COR and PI evaluate contractor performance.

GREEN PROGRAM SUBMITTALS
If applicable, final requirements are submitted for LEED or similar programs.

FACILITY ASSET MANAGEMENT SYSTEM
In coordination with COR, the FAMS Data Steward enters relevant asset attributes into FAMS.

MAINTENANCE
Ongoing maintenance and condition assessments are provided to ensure safety and comfort of users. COR coordinates with appropriate BLM staff regarding future maintenance needs. Regular maintenance extends the life of the facility. In order to protect the facility from possible future competing developments, pursuing appropriate lands actions is considered, such as self-issued rights-of-way, and/or withdrawal from mineral entry.

WARRANTY
COR and facility manager meet with contractor at end of warranty period to address any deficiencies.

Responsibility (FAMS): FAMS Data Steward
Responsibility (Maintenance): Field/District Office Staff
**VISITOR CENTER**

<table>
<thead>
<tr>
<th>LAND USE PLANNING</th>
<th>ACTIVITY LEVEL PLANNING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESOURCE MANAGEMENT PLAN REVIEW</strong></td>
<td><strong>ACTIVITY LEVEL PLAN REVIEW</strong></td>
</tr>
<tr>
<td>Reference Resource Management Plan (RMP) and other relevant land use plans (County Comprehensive Plan, City General Plan, etc.) for broad management direction and to ensure conformance with Plan decisions, goals, and objectives. In this case, the RMP identifies a need to provide, near municipal services, orientation and information for visitors, a visitor welcome desk, interpretive exhibits, and program space.</td>
<td>In this case, both an approved Facilities Master Plan and an Interpretive Master Plan address visitor center development. These plans identify the need to provide formalized visitor contact via construction of a new Visitor Center. The Facilities Master Plan provides direction on location, scale/size of facility, etc., whereas, the Interpretive Master Plan addresses the interpretive themes that are to be incorporated into the design and programming.</td>
</tr>
</tbody>
</table>

**POTENTIAL FUNDING**

Potential funding sources are identified for project planning, design, construction, and maintenance. Prepare a preliminary cost estimate using cost data included in the FAMS.

Responsibility: Design Professional

Approval: Field Office Manager
ASSIGN CERTIFIED PROJECT MANAGER
The Deputy State Director assigns a Certified Project Manager for the project. The Project Manager coordinates the planning/design/construction process and sees the project through to completion. For a project of this complexity (over $2.0M), a Certified Project Manager with training and prior experience in complex construction projects is required.

FORM PROJECT PLANNING TEAM
Project Manager secures assistance from relevant BLM staff to include an architect, engineer, landscape architect, interpretive specialist, recreation/visitor services staff, maintenance staff, public affairs officer, etc. The design professionals could work at the Field, District, or State level, or be with the National Operations Center, and will likely transition to the Project Design Team.

NEPA INITIATION
Project-level NEPA is initiated.

PUBLIC SCOPING
Stakeholders are engaged via formal (letters, surveys, meetings) and/or informal (site visits, conversations) methods to determine public support for project and any development/resource concerns they may have.

SITE ANALYSIS
Planning Team conducts analysis to understand opportunities and constraints of the sites being considered for construction of the new Visitor Center. Potential opportunities could include proximity to existing roads/transportation systems, proximity to existing services, scenic views, etc. Identification of constraints could include existing overhead utility lines, steep topography, unstable soils, etc. Analysis also identifies architectural and landscape character area. Other analysis data may include existing vegetation, sun angles, prevailing winds, etc.

USER PROFILE
A user profile is prepared to understand who would use the Visitor Center and how. What types of spaces are needed for interpretive programming and for visitor contact. What types of spaces are needed for staff to perform their jobs?

DEVELOP DESIGN PROGRAM
Project Manager and Planning Team develop the program document in coordination with the Field Office Manager. Program should be detailed enough to clearly identify requirements while allowing flexibility in design. Program elements may include: storage and exhibit space, parking requirements, accessibility standards, outdoor gathering areas, and water-efficient native landscaping.

GREEN STRATEGY GOALS
Green Strategy goals are determined for project development (e.g., use of renewable energy, water-efficiency, use of native plants, recycling, etc.).

PRELIMINARY BUDGET
Project Manager and Planning Team, in conjunction with the Field Office Manager, establish a preliminary budget for design and construction.

PRELIMINARY SCHEDULE
Project Manager and Planning Team prepare a preliminary schedule for completion and identify milestones.

PROJECT DATA SHEET
A Project Data Sheet is prepared by Project Manager and Planning Team and submitted for Capital Improvements funding.

Responsibility: Project Manager and Planning Team
Approval: Field Office Manager
VISITOR CENTER

CONCEPTUAL DESIGN

FORM DESIGN TEAM
Design Team is made up of qualified BLM design professionals (Field-, District-, State-level, or National Operations Center), many of whom will transition from the Project Planning Team, and/or an Architectural Engineering (A/E) contractor.

RESEARCH
Design Team reviews program document, relevant planning documents, GQBE, and other materials as needed.

ALTERNATIVE CONCEPTS
Design Team develops alternative design concepts for the new Visitor Center. Conceptual designs explore room layout, parking configurations, building orientation, floor plans, mechanical systems, etc.

CLASS C PRELIMINARY COST ESTIMATE
Project Manager oversees preparation of Class C Preliminary Cost Estimates for each alternative design concept.

SELECT PREFERRED CONCEPT
Based on feedback from Project Manager, Design Team, BLM staff, and stakeholders, the Field Office Manager and Project Manager determine which concept to further refine.

GREEN PROGRAM REGISTRATION
If applicable, Project Manager registers the project with the U.S. Green Building Council (USGBC) LEED program or similar.

NEPA
Project-level NEPA is completed.

APPRAOVAL TO PROCEED
Project Lead receives approval to proceed to design development from Field Office Manager.

Responsibility: Project Manager & Design Team
Approval: Field Office Manager

DESIGN DEVELOPMENT

REFINE DESIGN
Design Team refines the preferred design concept and major design decisions are finalized (e.g., number of parking stalls, number of meeting/conference spaces, etc.). Project Manager coordinates review periods with Design Team and ensures that GQBE and other planning and design parameters have been integrated into design.

CONSTRUCTABILITY REVIEW
Constructability Review performed at approximately 90% design completion. This review should be performed by an independent consultant or a BLM multidisciplinary team.

VALUE ENGINEERING
A formalized Value Engineering review is required for projects over $1M. Perform Value Engineering as needed to reconcile project with budget and create value through careful review of materials and life cycle costs.

TYPE OF BID/CONTRACT
Project Manager consults with procurement to determine which contract documents will be prepared for selected procurement process.

CLASS B COST ESTIMATE
Project Manager coordinates completion of Class B Cost Estimate with Design Team.

LOCAL PLANNING/ZONING COORDINATION
As appropriate, Project Manager coordinates the approval of project plans with local and state jurisdictions (i.e., departments of transportation, planning board, city council, etc.) to ensure connections to existing utilities and services.
VISITOR CENTER

### CONSTRUCTION DOCUMENTS

**Design Team** completes Construction Documents to include drawings and specifications utilizing BLM standards. Project Manager coordinates review periods throughout process to ensure complete and accurate construction package as changes after this phase can be costly.

### FINAL COST ESTIMATE

**Design Team** develops Final Construction Cost Estimate (Class A) based on final construction documents.

### GREEN PROGRAM SUBMITTALS

If applicable, perform ongoing documentation for LEED or similar programs. Submittals to USGBC to be coordinated by LEED-accredited professional.

### PROCUREMENT / CONSTRUCTION

#### ASSIGNMENT OF CONTRACTING OFFICER REPRESENTATIVE (COR)/PROJECT INSPECTOR (PI)
Field Office Manager selects qualified COR and PI. Project Manager typically serves as COR. For projects over $2.0M, a Certified Project Manager is required. If Project Manager does not serve as COR, close coordination during construction is required.

#### BID PROCESS
Bid documents (bid schedule, construction documents, government estimate and specifications) are prepared for Contracting Officer (CO) to undertake procurement action. CO coordinates bidding with interested contractors. A pre-bid meeting is held several weeks prior to bid opening.

#### CONSTRUCTION CONTRACT AWARD
CO awards contract to successful bidder.

#### PRE-WORK MEETING
COR and PI conduct pre-work meeting to provide for clear and mutual understanding of contract requirements. Use meeting to identify and resolve issues with site conditions or contract documents.

#### PERMITS/APPROVALS
If applicable, COR ensures contractor obtains necessary permits and approvals from local jurisdiction.

#### CONSTRUCTION COORDINATION
COR and PI review contractor’s progress schedule, submittals, materials delivery, and other contractual obligations. COR ensures contractor adheres to contract while coordinating with CO. PI conducts inspections and documents progress during construction. Regular progress meetings are held on site with the contractor and subcontractors. COR approves payments, tracks schedules, reviews certified payroll, resolves conflicts, and communicates any issues related to contract progress or need for modifications to the CO.

**Responsibility:** Project Manager & Design Team  
**Approval:** Field Office Manager
## VISITOR CENTER

### PROCUREMENT / CONSTRUCTION

<table>
<thead>
<tr>
<th>WALK-THROUGH PUNCH LIST</th>
<th>PROJECT DOCUMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near final completion of contract, COR, PI, and key members of the Design Team conduct a walk-through and generate a punch list to correct any deficiencies.</td>
<td>Contractor provides contract closeout submittals, including as-built drawings, master keys, punch list check-off, operation and maintenance (O&amp;M) manuals, and Final Payment Invoice for processing. Items provided by contractor to be filed/maintained by BLM facilities manager. COR and PI take photographs and prepare brief project summary, which includes project process, costs, and lessons learned.</td>
</tr>
</tbody>
</table>

### FINAL COMMISSIONING/TESTING

COR coordinates testing of major systems. Commissioning includes mechanical systems, CO2 monitoring systems, energy performance, HVAC systems and associated controls, lighting and day-lighting controls, hot water systems, and renewable energy systems.

### POST-CONSTRUCTION

<table>
<thead>
<tr>
<th>DEDICATION</th>
<th>EVALUATE CONTRACTOR</th>
<th>GREEN PROGRAM SUBMITTALS</th>
<th>FACILITY ASSET MANAGEMENT SYSTEM</th>
<th>MAINTENANCE</th>
<th>WARRANTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>COR coordinates with Public Affairs Officer to announce opening of new visitor center and on-site dedication.</td>
<td>COR and PI evaluate contractor performance.</td>
<td>If applicable, final requirements are submitted for LEED or similar programs.</td>
<td>In coordination with COR, the FAMS Data Steward enters relevant asset attributes into FAMS.</td>
<td>Ongoing maintenance and condition assessments are provided to ensure safety and comfort of users. COR coordinates with appropriate BLM staff regarding future maintenance needs. Regular maintenance extends the life of the facility. In order to protect the facility from possible future competing developments, pursuing appropriate lands actions is considered, such as self-issued rights-of-way, and/or withdrawal from mineral entry.</td>
<td>COR and facility manager meet with contractor at end of warranty period to address any deficiencies.</td>
</tr>
</tbody>
</table>

**Responsibility (FAMS):** FAMS Data Steward  
**Responsibility (Maintenance):** Field/District Office Staff

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracting Officer’s Technical Representative / Project Inspector</td>
<td>Contracting Officer (CO)</td>
</tr>
</tbody>
</table>
CHAPTER 6

DESIGN GUIDELINES
INTRODUCTION

This chapter of the GQBE is presented as a quick reference for the various facilities BLM constructs. It is organized into design categories ranging from site considerations such as roads and parking to structures like offices and restrooms, and from recreation facilities like campgrounds and trailheads to site fixtures such as barriers and signs. The design guidelines are a resource for those involved in the planning, design, construction, and maintenance of BLM’s built environment—including, but not limited to, architects and landscape architects, engineers, recreation planners, managers, and maintenance staff—and including BLM personnel as well as contractors, concessionaires, and volunteers.

DESIGN CATEGORIES

The design guidelines are divided into four design categories illustrated with the following title and associated graphic icon at the top right corner of every spread:

Site
SITE PLANNING | ROADS | PARKING | GRADING | DRAINAGE | VEGETATION | UTILITIES

Recreation Facilities
CAMPGROUNDS | PICNIC AREAS | BOATING FACILITIES | OVERLOOKS & WAYSIDES | TRAILHEADS | TRAILS

Structures & Associated Spaces
ADMINISTRATIVE OFFICES | VISITOR FACILITIES | FIRE FACILITIES | MAINTENANCE BUILDINGS & WAREYARDS | RESTROOMS | SHELTERS | KIOSKS & INTERPRETIVE STRUCTURES

Site Fixtures
BARRIERS | SITE FURNITURE | SIGNS | LIGHTING

PRIMARY PRINCIPLES

In developing the GQBE, it became evident that several design principles were important to be considered no matter what the type of facility. Those commonly applicable, overarching concepts became the PRIMARY principles and are detailed below. These primary principles are used to outline the appropriate level of design for the specific facility types and are indicated by a number within a brown square. The first page in each facility type section uses these five overarching principles to outline the essential ideas and concepts central to each principle as they relate to the particular design problems of each facility type.

1 Plan for Use and Users
To a large extent, the people who will use BLM facilities determine what the design will be. What is to be built? Who will it serve? How many people will use it? How much space is needed? What is the season of use? Researching the needs of users and the requirements of proposed activities (including the level of maintenance) early on in any design process will greatly increase the quality of a facility.

2 Select Appropriate Site
Successful design considers the elements of a particular facility as well as the location of designed facilities within the context of their setting. Whether locating a fence or siting a large visitor center, appropriate site selection is
one of the most important factors leading to a quality design. Overall site and facility character is influenced by careful consideration of relative proximity to necessary infrastructure (utilities, roads, transit, amenities, other facilities) as well as the spatial relationships within a natural setting (adjacent to natural features without causing resource degradation).

**3 Prepare Site Analysis**

Developing designs that are responsive to setting is critical. A detailed site inventory and analysis, including climatic conditions, topography, drainage, vegetation, soils, wildlife, solar angles, cultural context, and natural and built features, will greatly inform design concepts and appropriate context-sensitive solutions.

**4 Implement Green Strategies**

When designing for public lands creative solutions that balance protection of resources with accommodation of public uses must be sought. Protecting the site both during construction and afterwards will result in a more aesthetically pleasing facility, increased biodiversity, cleaner water and air, and enhanced visitor experience.

**5 Design a Cohesive Environment**

Sites are designed holistically and as a unified composition of buildings, spaces, and site elements that connect with one another and with natural features. Using a consistent family of materials, colors, textures, forms, and details creates a cohesive character, reduces visual clutter, contributes to an overall appearance of quality, while providing a sense of place.

The design guidelines sections that follow illustrate how the primary and secondary design principles apply to particular facilities. Photographs, sketches, and annotated diagrams are used to identify where and how the principles were applied.

The digital version of the GQBE allows users to quickly move from one facility type to another via hyperlinks at the bottom of the first page of each section. This recognizes that most facility developments include many of the facility types in the GQBE. For example, when planning and designing a campground it would be useful to reference not only the campground section, but also the sections on roads, parking, restrooms, trails, vegetation, grading, etc.

Additional details, ideas, suggestions, and standards are provided in informational text boxes and in the following three notes forms:
Site planning is the process during which site elements are combined into a cohesive arrangement on a given site. Site elements are located with respect to the opportunities and constraints of the site as well as to respond to user needs. Successful site planning integrates the needs of various users into a single plan to create a safe, functional, and attractive facility that allows for positive visitor experiences while also respecting the integrity of the natural and cultural character of the place.

Whether designing a back-country trailhead or a visitor center, collaboration amongst a range of stakeholders and designers increases the likelihood of developing a quality facility.

1. **Plan for Use and Users:**
   - Identify users, purpose, and function of facilities
   - Consider long-term maintenance
   - Identify the anticipated type and volume of traffic
   - Separate uses as appropriate
   - Select appropriate surface materials
   - Determine space requirements for facilities and uses
   - Plan for accessibility
   - Provide protection from the elements (sun, rain, wind, snow) as needed
   - Create an intuitive and recognizable entrance to site

2. **Select Appropriate Site:**
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Utilize vegetation, topography, or other natural features for screening
   - Maximize views of natural features and minimize views of facilities
   - Locate facilities on gently sloping terrain to minimize grading
   - Identify, weigh, and balance the attractiveness (environmental, cultural, accessibility) of a site against the inherent costs in its development (environmental, cultural, hazards, energy, operational)

3. **Prepare Site Analysis:**
   - Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for development
   - Identify views into and from site
   - Identify areas with safety and resource protection concerns clearly
   - Study sun angles to best provide shade
   - Determine the carrying capacity of a site based on the sensitivity of site resources and the ability of the land to regenerate itself

4. **Implement Green Strategies:**
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
   - Restore disturbed areas after construction
   - Utilize passive solar design techniques
   - Rehabilitate/reuse/recycle where feasible and practical
   - Use renewable, local, and/or recycled content materials
   - Utilize above-ground stormwater management techniques (e.g., bioswales, filter strips, raingardens, etc.)
   - Use pervious paving to reduce runoff and increase water infiltration
   - Prevent, control, and/or remove noxious/invasive weed species
   - Provide shade to structures and paved areas
   - Consider life cycle costs of project
   - Consider on-site waste treatment

5. **Design a Cohesive Environment:**
   - View architectural design as an opportunity to enhance the sense of place and correspond to interpretive themes
   - Create visual consistency between site materials and surrounding landscape
   - Correspond level of development to remoteness of setting
   - Use materials that are durable
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures
   - Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter

6. **Design for Safety and Security:**
   - Provide accessibility to all buildings, amenities, and attractions
   - Assess the potential for vandalism and design to reduce risk
   - Design safe pedestrian and vehicular circulation patterns
   - Provide security for site and building access
   - Provide for safe storage and handling areas for potentially hazardous materials

7. **Design Visitor Experience:**
   - Plan arrival sequences carefully to give a positive first impression of facility
   - Educate visitors about the unique features of the site
Site provides space to interpret natural feature while protecting the resource

Building orientation and plaza space provide views into the landscape

Shaded areas for public and employees on north side of building

Kiosk reflects the architectural character of the building

Trash enclosure and utilities are separate from visitor use areas

Photovoltaic panels over covered parking to shade vehicles and provide power to the facility

Clear separation of pedestrian and vehicular traffic

Circulation routes and parking accommodates 2-way traffic and large vehicles

Boardwalk reduces disturbance of sensitive cultural resource

Building is oriented for passive solar gain

Barrier and appropriate standoff distance provide building security

Clear separation of pedestrian and vehicular traffic

Site design allows for future expansion

Private spaces and utilitarian uses are tucked behind public buildings

Secondary access to wareyard is provided for large vehicles and deliveries

Buildings along the edge provide screening

Space between fence and property line allows for adequate buffer planting

Vehicular gate secures the site

Accessible parking is provided near entry

After hours informational kiosk located in prominent location

Site sign identifies property

Parking area allows for vehicles of all sizes. Continuous pull-through layout allows easy navigation for larger vehicles

Vegetated swale infiltrates stormwater on site

Fenced area secures wareyard while separating public and private spaces

Carport provides shade, and photovoltaics provide power

Site sign identifies property

Parking area allows for vehicles of all sizes. Continuous pull-through layout allows easy navigation for larger vehicles

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Vegetated swale infiltrates stormwater on site
SITE PLANNING

Blackwell Island Recreation Site, Idaho

SITE DESIGN GUIDELINES

- Site elements are visually consistent
- Boardwalks protect low-lying areas by keeping visitors in designated areas
- Pedestrian and vehicular traffic is clearly separated
- All amenities on site are accessible

STANDARD PRACTICE:

- Understand and design to meet Visual Resource Management (VRM) objectives

SOMETHING TO CONSIDER:

- Consult geotechnical report for recommendations regarding unstable soils and buildable limitations
- When preparing site plan, use building floor plans to show relationships between indoor and outdoor spaces

Pervious areas are integrated into parking at base of planted islands; runoff from the paved surfaces is directed into some of these areas.

Native trees are preserved and integrated into the parking layout to reduce visual impact of parking and to provide shade.
**PROJECT PLANNING**

1. Steep slopes and unbuildable areas are identified.
2. Relatively flat ground for parking and structures is identified.
3. Use areas are set back to preserve sensitive habitat.
4. Potential access areas to trails and overlooks are located.
5. Key natural features (vegetation masses, rock formations) are integrated into site diagram.
6. Location of potential access points ensures safe access and minimizes extension of utilities.
7. Significant views into site are identified to orient visitors.

**CONCEPTUAL DESIGN**

1. Existing vegetation is integrated into site plan.
2. Parking is separated from building by vegetated area to reduce heat island effect.
3. Path located to provide gently sloping grades for accessibility.
4. Entry road follows contours to minimize disturbance.
5. Monument sign helps provide positive first impressions to visitors while giving a sense of arrival.
6. Building uses passive solar alignment by orienting long facades north to south. Shade structure connected to building provides usable outdoor space on north side.
7. Existing vegetation is integrated into site diagram.
Arrival sequence is carefully planned. Views of destination orient visitor; gateway monument identifies site; drop off zone is adjacent to building.

Development is located at base of slope to take advantage of cooling winds, but facing south for solar gain in the winter (large overhangs moderate summer heat).

Identification signs located at least 200' prior to entry on both sides of the road.

Development located outside of 100-year floodplain, sensitive habitat, and migration corridor.

Native, drought tolerant planting beds are carefully sited to provide shade and an attractive entry.

Light-colored paving is used to reduce heat island effect.

Site features match to form a cohesive family of elements.

---

**THINK GREEN:**

- Keep development footprint appropriate distance from bodies of water or wetlands
- Include a restoration/reclamation plan in the design phase and be sure to save funds to implement it
- Use passive solar techniques to optimize energy usage
**STRATEGIES FOR BIOCLIMATIC SITE DESIGN**

**HOT, ARID CLIMATE**

- Deciduous trees on south side of buildings provide shade in summer and allow sun to heat building in winter.
- Existing vegetation is preserved, and natural floodplain is unaltered.
- Parking separated from structures reduces heat island effect.
- Clerestory windows are oriented north to minimize heat gain.
- Covered outdoor space and large overhangs on north side create comfortable gathering spaces.
- Structure is near edge of slope to take advantage of cool air sinks.

**COLD, NORTHERN CLIMATE**

- Building is sited below evergreen trees to protect from cold, north winds.
- Earth-berm at the back wall of structure increases energy efficiency by providing insulation.
- Facility is built within a natural clearing to preserve existing vegetation.
- South-facing clerestory windows maximize day-lighting and solar heat gain.
- Structure sits below top of the ridge to reduce visual and climatic exposure.
### REGIONAL BIOCLIMATIC STRATEGIES FOR SITE PLANNING AND DESIGN

<table>
<thead>
<tr>
<th>CLIMATE ZONE</th>
<th>HOT AND ARID</th>
<th>HOT AND HUMID</th>
<th>TEMPERATE</th>
<th>COLD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUN</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Avoid heat-absorbing materials; use thick walls or earth shelters</td>
<td>• Maximize shade through the use of plantings</td>
<td>• Site structures on southerly slopes for solar gain in winter</td>
<td>• Site structures on southerly slopes for solar gain in winter</td>
</tr>
<tr>
<td></td>
<td>• Use pergola and trellis structures for shade</td>
<td>• Use pergola and trellis structures for shade</td>
<td>• Avoid northern entrances to buildings</td>
<td>• Cold climate siting benefits from steeper slopes for better solar access</td>
</tr>
<tr>
<td></td>
<td>• Provide large overhangs on buildings</td>
<td>• Use screened terraces to provide relief from direct heating of main structure</td>
<td>• Plant deciduous trees for afternoon shade</td>
<td>• Avoid northern entrances to buildings</td>
</tr>
<tr>
<td></td>
<td>• Avoid large areas of exposed glass</td>
<td>• Provide large overhangs on buildings</td>
<td>• Use high ceilings and vent roof systems</td>
<td>• Plant deciduous trees for summer shade</td>
</tr>
<tr>
<td></td>
<td>• Shade use areas with low water requiring native trees and shrubs</td>
<td>• Use high ceilings and vent roof systems</td>
<td>• Use earthshelters to protect from summer sun</td>
<td>• Use earthshelters to protect from summer sun</td>
</tr>
<tr>
<td></td>
<td>• Site buildings with east-to-west orientation to minimize western sun exposure</td>
<td>• Site structures with east-to-west orientation to minimize western sun exposure</td>
<td>• Site structures with east-to-west orientation to minimize western sun exposure</td>
<td>• Site structures with east-to-west orientation to minimize western sun exposure</td>
</tr>
<tr>
<td><strong>WIND</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Site structures at toe of slopes for exposure to cool air flows at night</td>
<td>• Site structures near top of slopes for exposure to breezes</td>
<td>• Site structure on middle to upper slope for access to light winds, but protection from high winds</td>
<td>• Site structure on middle to lower slope for wind protection</td>
</tr>
<tr>
<td></td>
<td>• Deflect hot winds with vegetation walls and screens</td>
<td>• Avoid excessive earth mounding that may trap moist air</td>
<td>• Use landforms, plants, and structures to divert northerly winter winds while allowing cooling summer breezes</td>
<td>• Use coniferous plantings to block cold winds</td>
</tr>
<tr>
<td></td>
<td>• Maximise breezes through the use of canopy trees with a loose, open pattern</td>
<td>• Avoid tall solid walls that block cooling breezes</td>
<td>• Use earthshelters to protect from winter winds</td>
<td>• Avoid topographic depressions that collect cold air</td>
</tr>
<tr>
<td></td>
<td>• Avoid tall solid walls that block cooling breezes</td>
<td>• Avoid tall solid walls that block cooling breezes</td>
<td>• Use earthshelters to protect from winter winds</td>
<td>• Use earthshelters to protect from winter winds</td>
</tr>
<tr>
<td><strong>WATER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Use drought-tolerant plants and xeriscape principles</td>
<td>• Avoid siting next to stagnant bodies of water</td>
<td>• Use stormwater retention/detention ponds for evaporative cooling of the site</td>
<td>• Foundations for structures and pavement must drain well to prevent damage from freeze/thaw cycles</td>
</tr>
<tr>
<td></td>
<td>• Limit impervious surfaces to minimize runoff</td>
<td>• Maximize infiltration of stormwater runoff</td>
<td>• Use well-drained foundations to prevent damage from freeze/thaw cycles</td>
<td>• Foundations for structures and pavement must drain well to prevent damage from freeze/thaw cycles</td>
</tr>
<tr>
<td></td>
<td>• Provide positive drainage and use runoff to water plants</td>
<td>• Use visually integrated and creative stormwater management</td>
<td>• Use visually integrated and creative stormwater management</td>
<td>• Foundations for structures and pavement must drain well to prevent damage from freeze/thaw cycles</td>
</tr>
<tr>
<td></td>
<td>• Where legal, use water collection, cisterns, and gray water to irrigate establishing plants</td>
<td>• Use visually integrated and creative stormwater management</td>
<td>• Use visually integrated and creative stormwater management</td>
<td>• Foundations for structures and pavement must drain well to prevent damage from freeze/thaw cycles</td>
</tr>
</tbody>
</table>
ROADS

Roads provide the primary means of traveling through BLM lands. In some instances, they are a means to an end, allowing those using public lands to get from one destination to another. In other instances, traveling the road itself is the destination, as is the case with National Scenic Byways and BLM Backcountry Byways. Care should be taken to ensure that roads are designed to respond to the landscape character, protect the natural and cultural resources through which they pass, allow for safe passage, and provide an interesting driving experience.

1 Plan for Use and Users:
   - Identify users, purpose, and function of vehicles
   - Consider long-term maintenance
   - Identify the anticipated type and volume of traffic
   - Select appropriate surface materials
   - Utilize appropriate design standards for use
   - Plan for accessibility
   - Plan for wildlife in sensitive migration corridors (e.g., below-grade crossings, fencing)

2 Select Appropriate Site:
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Maximize views of natural features and minimize views of roads

3 Prepare Site Analysis:
   - Compile information about site conditions, including: natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for road construction
   - Identify views from road
   - Identify clearly any areas with safety and resource protection concerns

4 Implement Green Strategies:
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
   - Restore disturbed areas after construction
   - Use renewable, local, and/or recycled content materials
   - Utilize above-ground stormwater management techniques (e.g., bioswales, filter strips, rain gardens, etc.)
   - Prevent, control, and/or remove noxious/invasive weed species

5 Design a Cohesive Environment:
   - Consider life cycle costs of project
   - Minimize vegetation clearing on roadway shoulders to reduce erosion and preserve habitat
   - Use rockery walls for slope retention where appropriate

6 Design for Safety and Security:
   - Design roads for appropriate speeds and width that meet the anticipated/planned usage
   - Utilize traffic-calming measures to help slow traffic speeds
   - Utilize ditches, swales, vegetation, and grade changes to clearly define road edge and manage vehicular routes
   - Retain, revegetate, and manage roadside vegetation

7 Design Visitor Experience:
   - Vary road alignment to take advantage of land forms and views
   - Use changes in road materials, widths, and approach to provide interest
   - Provide interest along road corridor by framing views and directing attention to landscape features
   - Consider the road an access to viewing the landscape and scenic quality of the area
Road alignment curves naturally through landforms and focuses views on area scenery.

Context sensitive road alignment preserves trees adjacent to road.

Minimal grading integrates road into natural topography.

STANDARD PRACTICE:

- Refer to BLM Manual Section 9113-Roads
- AASHTO geometric standards for low-volume, low-speed, single-lane, and unpaved roads may not be applicable to BLM roads.

Disturbance and earthwork is minimized by following existing terrain.

Speeds are controlled and interest added by varying road alignment.

Roadway is defined with vegetation up to road edge and change in grade.

FULLY INTEGRATED: Burr Trail Road - Scenic Backway, Utah

 Valley of the Gods Road - Scenic Backway, Utah
Vertical wood barriers along road create a unifying site feature

Turning radii and road widths are appropriate for trucks towing trailers

Subtle barriers and vegetation along roadside keep vehicles within corridor

Gentle curves and soft surface are appropriate for the low intended travel speeds into site

Roadway defined with vegetation and grade change

Refer to BLM Manual, Section 9113-Roads
COMMON ALIGNMENT

- Existing trees to remain
- Common alignment merges roads to form smaller and consolidated footprint

SEPARATED ALIGNMENT

- Road is designed for light traffic and low speeds
- Separated alignment* saves more existing mature trees
- Gently curving road provides visual interest

* Separated alignment could be beneficial in rough and irregular terrain.
Low-water crossing is provided along perennial stream bed

Materials are durable

Change in materials serves as a traffic-calming device

SOMETHING TO CONSIDER:

- Use traffic-calming techniques to reduce speeds
- Reducing straight sections of road can help reduce speeds, enhance interest, and hold driver’s attention to create safer driving conditions

Road alignment and break in landform provide views to the destination, creating a legible arrival sequence

Curves in road provide visual interest; as cars travel, visitors view the landscape from different angles

Identification sign is located along road corridor

Road follows natural contours of the site to reduce grading

Varying grades adjacent to road mimics the natural landscape and reduces runoff

Vegetated swale collects water from roadway

Red Rock Canyon National Conservation Area, Nevada
Rock sculpting follows fracture lines and bedding planes within bedrock, repeating the natural lines and textures of landscape.

Benching and terracing provides natural rock massing and helps establish vegetation to blend the roadcut with its surroundings.

Rock walls are offset from roadway for driver safety.

- Unstable back slope
- Exposed drill marks and unnatural rock massing
- Drill marks removed to give natural appearance
- Rock and slope sculpting with native vegetation

**Interstate 70 - Vail Pass, Colorado**

**STANDARD PRACTICE:**
- Bridges, culverts, tunnels, cattle guards, and other structures must have a minimum curb-to-curb or rail-to-rail width of 14 feet for single-lane roads and 24 feet for double-lane roads.

**THINK GREEN:**
- Use native vegetation to naturalize appearance of roadside and to stabilize slopes.
- Consider using vegetated drainages or rock arrangements to dissipate water velocity and reduce erosion.
Parking areas are a necessary part of most BLM facilities. While providing an important function, they can also diminish natural scenery, degrade streams and wetlands, and present other environmental and aesthetic problems. If not well-defined, visitors may drive beyond acceptable parking area limits, harm native vegetation, and contribute to erosion. Designers should take care to create safe environments that serve pedestrians as well as vehicles by clearly defining vehicular routes.

**Plan for Use and Users:**
- Identify users, purpose, and function of vehicles
- Consider long-term maintenance
- Identify the anticipated type and volume of traffic
- Separate vehicular and pedestrian circulation and provide logical circulation routes to site amenities
- Select appropriate surface materials
- Utilize appropriate design standards to delineate parking areas
- Plan for accessibility
- Use materials that are durable
- Create an intuitive and recognizable entrance to parking areas that reinforces a sense of arrival for visitors
- Design parking to accommodate average usage, not peak usage
- Identify overflow parking
- Install barriers to contain parking

**Select Appropriate Site:**
- Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
- Protect scenic, cultural, and historic values
- Utilize vegetation, topography, or other natural features for screening
- Minimize views of parking
- Locate parking areas on gently sloping terrain to minimize grading
- Provide sufficient buffer widths between roads and parking areas
- Allow for future expansion

**Prepare Site Analysis:**
- Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
- Analyze site information to identify opportunities and constraints for parking
- Clearly identify areas with safety and resource protection concerns
- Study sun angles to best provide shade
- Assess drainage patterns that will be impacted, and plan for realignment

**Implement Green Strategies:**
- Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
- Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
- Restore disturbed areas after construction
- Use renewable, local, and/or recycled content materials
- Utilize above-ground stormwater management techniques (e.g. bioswales, filter strips, raingardens, etc.)
- Consider pervious paving systems
- Prevent, control, and/or remove noxious/invasive weed species
- Provide shade to parking areas and use light-colored paving materials where appropriate
- Consider life cycle costs of project

**Design a Cohesive Environment:**
- View the entire site as a whole and design the parking areas to fit well with site features, facilities, and surrounding landscape character
- Create visual consistency between surfacing materials and wheelstops and surrounding landscape
- Correspond level of development to remoteness of setting
- Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter

**Design for Safety and Security:**
- Use separated walks, striped crosswalks, changes in color or texture, and barriers to create clearly defined, safe pedestrian zones
- Ensure adequate space for ingress and egress and maintain adequate site distance
- Provide clearly identified, accessible parking spaces that are sized according to standards
- Use traffic-calming techniques to help slow traffic speeds
Parking area is tucked along edge of forest and shaded by existing trees

Accessible parking is clearly identified and located near amenity

Parking is arranged in small clusters, separated by areas of native grass and boulders

Generously sized parking stalls allow for pedestrian circulation around vehicles

Edge is defined by irregular placement of boulders and toe of slope

Heil Ranch, Colorado

THINK GREEN:
- Develop an erosion and sediment control plan
- Direct drainage to vegetated areas
- Preserve existing vegetation
- Provide shade to parking areas
- Consider permeable paving
- Use local materials

One-way drive reduces visual impact of paving surface

Road alignment at base of slope fits into natural topography

Drainage is directed into adjacent vegetated areas by maintaining cross-slope
1. Pull-through parking for large vehicles and those towing trailers is separated from other parking areas.

2. Parking configuration protects vegetation and topography.

3. Vegetated islands reduce impervious surface area, lessening stormwater runoff.

4. Parking stalls are tucked between vegetated islands, lessening visual impact.

5. Planted islands provide shade to parking area.

6. Wheel stops define individual parking stalls and prevent unintentional expansion.

7. Accessible parking stalls are located near entry.

8. Clearly defined pedestrian walkway increases safety for pedestrians.

9. Vegetated islands reduce impervious surface area, lessening stormwater runoff.
Wildwood Recreation Area, Oregon

PARKING SITE

STANDARD | ACCESSIBLE

- 20' Standard Space
- 10' Standard Space
- 12' Accessible Space
- 5' Accessible Aisle
- 12' Accessible Van Space

SOMETHING TO CONSIDER:

Common Traffic-Calming Techniques:
- Gentle curves
- Material changes
- Medians/parking islands
- Lane narrowing
- One-way lanes
- Speed bumps
- Raised pedestrian crossings

1. Though asphalt is impervious, it holds up well to high use and abundant rainfall in this climate.

2. Wheel stops separate pedestrian zones from vehicular traffic.

3. Vegetation is allowed to re-establish itself up to edge of pavement.

4. Parking area is clearly defined and development footprint is minimized.

5. When mature, trees will shade parking, creating a comfortable environment and reducing heat island effect.

6. Planted islands visually break up parking areas.

7. Native trees and grasses are drought-tolerant and appropriate to climate.

8. Asphalt paving is appropriate for this urban park, which receives heavy visitation.

Irvine, California
A mix of boulders and fencing clearly define walkways to keep pedestrians safe from vehicles and orient them to the destination.

Parking area is tucked against natural landscape feature.

Edges defined with boulders and fencing to reduce social trails.

Clearly defined accessible parking is provided.

8’ minimum where vehicles may overhang pedestrian paths.

20’ minimum.

Space behind vehicles allows for safe unloading and loading.

Use of wheel stops defines parking stalls to reduce parking expansion.

**STANDARD PRACTICE:**

- **Standard Stall:**
  3,048 x 6,096 mm (10’x20’)

- **Standard Accessible Stall:**
  3,657.6 x 6,096 mm (12’x20’)
  + 1,500 mm (5’) access aisle
### Grand Staircase-Escalante National Monument
Escalante Interagency Visitor Center, Utah

#### DESIGN GUIDELINES

Gravel pave area reduces heat island effects, which counts toward LEED credits

Gravel parking area coordinates well with color of building

Clearly defined accessible parking is provided

---

#### STANDARD TURNING RADII

<table>
<thead>
<tr>
<th>VEHICLE TYPE</th>
<th>AVERAGE DIMENSIONS*</th>
<th>MINIMUM INSIDE TURNING RADIUS</th>
<th>MINIMUM OUTSIDE TURNING RADIUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Passenger vehicle</td>
<td>6’ x 16’</td>
<td>13’-0”</td>
<td>23’-0”</td>
</tr>
<tr>
<td>2. Passenger vehicle with trailer</td>
<td>6’ x 49’</td>
<td>18’-0”</td>
<td>35’-0”</td>
</tr>
<tr>
<td>3. Motorhome with trailer</td>
<td>8’ x 53’</td>
<td>35’-0”</td>
<td>52’-0”</td>
</tr>
<tr>
<td>4. School bus</td>
<td>8’ x 40’</td>
<td>26’-0”</td>
<td>44’-0”</td>
</tr>
<tr>
<td>5. City bus/Tour bus</td>
<td>8.5’ x 40’</td>
<td>33’-0”</td>
<td>54’-0”</td>
</tr>
<tr>
<td>6. Garbage truck</td>
<td>8’ x 28’</td>
<td>18’-0”</td>
<td>32’-0”</td>
</tr>
<tr>
<td>7. Fire truck</td>
<td>8’ x 32’</td>
<td>35’-0”</td>
<td>48’-0”</td>
</tr>
</tbody>
</table>

*Dimensions are estimated

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Inside and outside turning radii are appropriate for anticipated vehicle types.
Grading a site sensitively is crucial to maintaining its landscape character. Grading should be done to avoid leaving scars, which often create long-lasting negative impacts. This is especially true of grading activities that excessively disturb the highly mineralized soils of western lands. Stripping shallow surface soil away can create visual and ecological impacts that may take many years to recover. The overall objective is to re-create a site's natural topography while setting the facility into the landscape forms.

## Plan for Use and Users:
- Identify uses and determine appropriate space and slope requirements
- Consider long-term maintenance
- Plan for accessibility

## Select Appropriate Site:
- Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
- Protect scenic, cultural, and historic values

## Prepare Site Analysis:
- Compile information about site conditions, including: natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
- Analyze site information to identify opportunities and constraints for grading
- Clearly identify areas with safety and resource protection concerns
- Determine slope criteria, roughness coefficient, erosion control, and revegetation requirements
- Identify areas that may require structural fill

## Implement Green Strategies:
- Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
- Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
- Restore disturbed areas after construction
- Prevent, control, and/or remove noxious/invasive weed species
- Consider life cycle costs of project
- Balance cut and fill
- Stockpile topsoil and rock for future use
- Reduce soil loss during construction by utilizing silt fencing, mulching, earth dikes, temporary retention systems, and/or sediment trap/basins, etc.
- Roughen ground surface and/or create depressions to allow infiltration and revegetation

## Design a Cohesive Environment:
- View the entire site as a whole and design the grading to fit well with site features, facilities, and surrounding landscape character
- Create visual consistency between materials and surrounding landscape
- Utilize rock staining, retention of existing rock outcrops, slope-rounding, and blasting techniques to achieve natural appearances
- Prohibit spilling of excess material on downhill slopes
Site grading is well planned to facilitate the visitor use and program.

Walkway gradually drops below grade for access to fish viewing area.

Location was selected to interpret salmon spawning area.

Site grading is well planned to facilitate the visitor use and program.

Walkway to featured viewing area is accessible and includes handrails.

The use of retaining walls allows preservation of existing vegetation and reduces site disturbance.

THINK GREEN:

- Preserve existing vegetation
- Develop an erosion and sediment control plan
- Roughen final grades to encourage water infiltration
- Clearly define project limits to reduce unnecessary disturbance
UNDESIRABLE SLOPE CUT METHOD

- Un-natural terrain
- Poor transition of slope
- Highly erodible, difficult to revegetate, uniform slopes

PREFERRED SLOPE CUT METHOD

1. A rounded transition is provided to existing terrain at top and bottom of cut-slopes
2. Rock outcroppings and vegetation are incorporated into cut-slope, giving a more natural appearance
3. A variety of slopes are used to mimic natural terrain and reduce erosion
4. Surface grades are roughened to encourage water infiltration and reduce erosion
5. Architecture is designed to fit into the landscape
6. Surface is left rough to encourage water infiltration
7. Undulating berms and naturalized edges match landscape character of adjacent areas
8. Wing wall disappears into slope

Grand Junction Interagency Air Center, Colorado
Features in the landscape are incorporated into the design to yield a more natural-looking landscape.

Varied slopes, rounded tops and bottoms of slopes, undulated faces of slopes create a more naturalized pond edge and reduce erosion.

Native vegetation used to help clean water and create habitat.

Features in the landscape are incorporated into the design to yield a more natural-looking landscape.

Varied slopes, rounded tops and bottoms of slopes, undulated faces of slopes create a more naturalized pond edge and reduce erosion.

Existing vegetation is preserved through strategic grading outside of drip-line.

Rockery is located based upon species and age of tree and soil characteristics.

Rockery constructed of local materials helps to blend with landscape setting.

A wall with larger stones at the bottom and smaller stones on the top will be stable and long-lasting.

Existing grade.
Water is a powerful force in the landscape. Grading and drainage solutions that avoid the harmful effects of erosion will prevent scars on the landscape that will be difficult to restore. We are now aware of the cumulative effects of past approaches to stormwater management and must take special precaution to design more sensitively so as to protect BLM lands.

**Plan for Use and Users:**
- Identify uses and determine appropriate space and slope requirements
- Consider long-term maintenance

**Select Appropriate Site:**
- Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
- Protect scenic, cultural, and historic values
- Select a site where development can fit on the land with minimal disturbance to natural drainages and floodplains

**Prepare Site Analysis:**
- Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
- Analyze site information to identify opportunities and constraints for stormwater management and drainage
- Clearly identify areas with safety and resource protection concerns

**Implement Green Strategies:**
- Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
- Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
- Restore disturbed areas after construction
- Infiltrate, collect, and reuse water on site
- Use renewable, local, and/or recycled content materials
- Prevent, control, and/or remove noxious/invasive weed species
- Consider life cycle costs of project
- Do not exceed historic runoff volumes when discharging into natural drainages

**Design a Cohesive Environment:**
- View the entire site as a whole and design the drainage to fit well with site features and facilities and minimally disrupt the natural site hydrology
- Create visual consistency between materials and surrounding landscape
- Design drainages, swales, and stream edges to achieve natural appearance
Red Rock Canyon National Conservation Area, Nevada

- Construct a bioretention facility
- Understand permeability of soils and percolation rates
- Direct water to landscaped areas

**SOMETHING TO CONSIDER:**

1. Concrete curb color and rock drainage structure blend with landscape setting
2. Rock is used to reduce water velocity and erosion
3. Surface water is drained to vegetated areas to encourage infiltration
4. Simple surface drainage technique is used to direct stormwater

*Red Rock Canyon National Conservation Area, Nevada*
BIORETENTION BASIN

Impervious surfaces provide surface drainage to bioswales

2% Min.

Bioretention soil mixture
Perforated pipe
Drainage layer

Impervious areas drain water to vegetated swale to facilitate water infiltration

Material is chosen from local sources, to ensure it matches landscape setting

Red Springs Day Use Area, Nevada
**SITE**

Corrugated metal pipe provides a solid form on which to build a cost effective, custom culvert.

Large stone located on top of culvert provides a stable end section.

Stones found or collected on or near the site reduce material and hauling costs.

Intact stream bottom maintains health of aquatic ecosystem.

Local materials blend with local landscape setting.

**DRAINAGE**

Use of natural stone on the face and matching boulders in the drainage provides a cohesive appearance to this structure.

Surface drainage swales encourage water infiltration and sedimentation.

Natural appearance of swale is provided through variety of stone sizes, meandering alignment, and altering grades on side-slopes.

**Eagle Preserve, Colorado**

**Eagle Preserve, Colorado**

**Littleton, Colorado**
When used correctly, plants serve a variety of purposes. Vegetation can provide shade, screen views, provide wildlife habitat, filter stormwater, clean air, restore damaged sites, and enhance the beauty of a site. Plants also have interpretive value and can be used to engage visitors and inspire connections to nature. The correct plants for the job can enhance and enrich the environment and minimize maintenance. Determining which existing plants to preserve, combined with thoughtful planting design for areas requiring new vegetation, should be considered an integral and critical component of facility development.

Plan for Use and Users:
- Identify the function and use of vegetation
- Consider having plantings serve interpretive purposes

Select Appropriate Site:
- Select plants and locate planting areas appropriate to microclimates and soils
- Avoid installing plants that will interfere with utility lines when mature
- Avoid obscuring views with vegetation

Prepare Site Analysis:
- Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
- Analyze site information to identify opportunities and constraints for existing and proposed vegetation
- Analyze microclimates to be created by built features and select plants accordingly
- Identify existing plants to retain

Implement Green Strategies:
- Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
- Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction
- Restore disturbed areas after construction
- Use native, drought-tolerant, and/or locally propagated plants
- Prevent, control, and/or remove noxious/invasive weed species
- Consider life cycle costs of project
- Use bioswales to channel water to vegetation
- Limit use of irrigation and/or use nonpotable water

Design a Cohesive Environment:
- View the entire site as a whole and develop a unified plant community and composition to fit well with site features, facilities, and existing landscape character
- Create visual consistency between plant materials and surrounding landscape

Design for Safety and Security:
- Use trees and shrubs as barriers or to buffer views into secure areas
- Use plants to guide access and vehicular and pedestrian circulation

Promote Biodiversity:
- Select a diverse mix of native species that reflects the natural environment of a site
- Consider plants that provide habitat for native wildlife
- Plant Federally listed or special status species to assist in restoring their numbers

Plan for Maintenance:
- Avoid plants prone to disease or stress and those otherwise difficult to establish
- Consider long-term maintenance
- Provide adequate separation between plants and adjacent paths, utilities, site furnishings, and paving
- Monitor newly planted native plants until established
- Establish an interim weed management plan to quickly and efficiently discourage weeds from establishing in newly planted areas
Using a variety of species, sizes, textures, colors, and forms promotes biodiversity. Plants are grouped to mimic native plant communities by layering, arrangement, and spacing. Planting matches local landscape character by incorporating boulders and other natural elements into arrangement.

- Revegetation utilizes native plants to provide food and cover for local fauna.
- Plantings soften impact of building and contribute to a sense that it grows out of the landscape.
- Designed landscape draws attention to the beauty and diversity of native plant communities.

*Standards Practice:
- Wildlife protection barriers should be used until revegetation efforts are sufficiently established to withstand browsing and grazing.

*Irvine, California*
Native forbs, shrubs, and grasses support local wildlife.

Native plants are adapted to semi-arid climate and require low levels of maintenance and irrigation.

Planted berm is integrated with parking; discourages foot traffic and helps to define vehicular circulation.

Shrubs and trees are set back from paving to reduce long-term maintenance.

Plants are low and soft against walk, allowing safe passage.

Site provides a variety of textures, forms, and colors found in nature.

Native vegetation provides food and cover for wildlife.

Plants with similar water requirements are grouped together.

Landscape design and plantings reinforce sense of remembrance and allow for peaceful reflection.

**SOMETHING TO CONSIDER:**

- Place vegetation that is desirable to wildlife away from roadsides and in locations where human-wildlife contact is not intended.
- Use temporary protection (fencing around vegetation).

**THINK GREEN:**

**XERISCAPE PRINCIPLES:**

- Plan and design landscape for low water use
- Choose appropriate plants
- Improve soil
- Use mulch
- Create practical turf areas
- Irrigate efficiently
- Maintain the landscape properly
Vegetation

Santa Rosa and San Jacinto Mountains National Monument, California

Planted landscape emulates nature with spacing and variety

Native vegetation is a part of the interpretive programming

Canopy trees shade public areas and buildings

Interpretive garden expresses the richness and interest of the native environment; inconspicuous labels identify plants

Native plant species and drip irrigation reduces potable water consumption

SOMETHING TO CONSIDER:

- Newly revegetated areas may attract wildlife, which can cause conflict with people and traffic
- Nursery grown plants are typically nitrogen enriched and are more desirable to wildlife

STANDARD PRACTICE:

- Executive Order 13112, Invasive Species, directs Federal agencies to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause.

Grand Staircase-Escalante National Monument - Cannonville Visitor Center, Utah
Utilities, whether power lines, septic systems, or solar panels, are necessary at many BLM facilities, and their installation has the potential to diminish scenic quality, alter wildlife habitat, and create other negative environmental impacts. The locations of utility lines and structures have serious implications to project planning, design, and construction, and need be thoughtfully considered throughout all phases of project development. Devising utility system concepts initially that respond to project needs, as well as constraints of the site, will save considerable time and money while also protecting sensitive resources. Use foresight in planning utilities by taking into account the potential for future expansion as well as how to avoid issues related to the size and mature height of site vegetation.

1. **Plan for Use and Users:**
   - Identify uses and determine appropriate space and slope requirements
   - Consider long-term maintenance
   - Develop site utility plan that allows for future expansion
   - Consider interpretive opportunities of green utilities related to water, waste, and power

2. **Select Appropriate Site:**
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Utilize vegetation, topography, or other natural features for screening
   - Minimize views of utilities
   - Locate site near existing utility corridors/connections
   - Analyze the long-term costs and benefits of locating utility lines above or below ground

3. **Prepare Site Analysis:**
   - Compile information about site conditions, including: natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for utilities
   - Identify views toward utilities
   - Clearly identify areas with safety and resource protection concerns

4. **Implement Green Strategies:**
   - Protect sensitive areas, including: stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction
   - Restore disturbed areas after construction
   - Use renewable energy
   - Reduce energy load of development
   - Consider using cisterns and other water-holding devices for reusing stormwater for nonpotable uses
   - Utilize nonstructural and structural techniques to reduce pollutants and retain stormwater runoff
   - Use surface draining swales and minimize the length of underground pipes
   - Consider life cycle costs of project

5. **Design a Cohesive Environment:**
   - View the entire site as a whole and plan the utilities to fit well with site features, facilities, and minimally disrupt the existing landscape character
   - Create visual consistency between utility structures and surrounding landscape
   - Correspond level of service to remoteness of setting

6. **Plan for Maintenance:**
   - Use locatable wire for ease of finding buried pipes and lines
   - Provide as-built drawings for utilities
   - Utilities being routed under roadways should be in conduit rather than direct burial to allow easy upgrading and repair
DESIGN GUIDELINES

1. Photovoltaic panels are located in depressed area out of view.

2. Photovoltaic panels are oriented due south and at the appropriate angle for maximum sun exposure.

3. Maintain vegetation in front of panels to provide clear line of sight during winter.

4. 100% of facility electricity is generated by solar.

5. Vegetation screens the photovoltaic panels.

6. Photovoltaic panels generate 10% of the building’s electricity.
Straight line is avoided to reduce visual impact and shorten view corridors.

Springs Preserve, Nevada

Photovoltaics are architecturally integrated into a shade port to provide shade for vehicles and renewable energy for the facility.

Weathering steel is used to reduce maintenance and visual contrast.

Shade fabric is used to reduce weight of structure and screen photovoltaic panels.

**THINK GREEN:**
- Day-lighting
- Passive solar
- Photovoltaic cells
- Wind turbines
- Hydro-power stations
- Geothermal systems
- Cogeneration systems
- Harnessing methane gas
- Biomass systems
- Solar hot water

**SOMETHING TO CONSIDER:**
- Use non-specular wire and insulators to reduce visual impacts of power lines
- Sharp angles along electrical transmission lines require larger turning towers or guying of power poles, thus increasing costs

Springs Preserve, Nevada
**DESIGN GUIDELINES**

Utility lines follow road corridor and previously disturbed areas.

HVAC units are hidden from public view by walls incorporated with the architecture.

Masonry wall constructed of same materials as visitor center; visually screens propane tank and trash receptacles while blending with site architecture and landscape setting.

Utility lines follow road corridor and previously disturbed areas.

Utility line is buried to reduce visual impact.
Demand for developed camping facilities on BLM lands ranges from semi-primitive settings where area is designated with simple signage and little else, to higher levels of service that include sites with camp hosts, tent pads, picnic tables, restrooms, and water. Care should be taken to match the level of development to the setting and visitor experience objectives. Balancing resource protection with visitor preferences, privacy, and comfort, as well as with budgetary constraints is challenging and demands creative, site-specific solutions.

**Plan for Use and Users:**
- Identify the users and their needs, and types and intensities of use
- Be guided by visitor experience objectives
- Consider long-term maintenance
- Provide a variety of camping opportunities
- Separate camping types as appropriate
- Assess the potential for vandalism and use fixtures and materials that are resistant to damage
- Plan for accessibility
- Provide protection from the elements (i.e., sun, rain, wind, snow) as needed
- Provide parking for a range of vehicle sizes
- Create an intuitive and recognizable entrance
- Establish a sense of privacy by using buffers, varying site placement along the road, and providing appropriate distances between campsites

**Select Appropriate Site:**
- Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
- Protect scenic, cultural, and historic values
- Utilize vegetation, topography, or other natural features for screening
- Maximize views of natural features and minimize views of campground facilities
- Locate near recreational attractions
- Locate facilities on gently sloping terrain to minimize grading

**Prepare Site Analysis:**
- Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
- Analyze site information to identify opportunities and constraints for development
- Identify views into and from campground
- Clearly identify areas with safety and resource protection concerns
- Study sun angles to best provide shade

**Implement Green Strategies:**
- Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
- Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
- Restore disturbed areas after construction
- Consider renewable energy if needed
- Reduce water use via water-efficient landscaping, wastewater technologies, high-efficiency fixtures, use of nonpotable water, etc.
- Rehabilitate/reuse/recycle where feasible and practical
- Use renewable, local, and/or recycled content materials
- Utilize above-ground stormwater management techniques (e.g., bioswales, filter strips, raingardens, etc.) adjacent to parking areas
- Consider pervious paving to reduce runoff and increase water infiltration
- Prevent, control, and/or remove noxious/invasive weed species
- Provide shade to structures and paved areas when practical
- Consider life cycle costs of project

**Design a Cohesive Environment:**
- View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
- Create visual consistency between site materials and surrounding landscape
- Correspond level of development to setting
- Use materials that are durable
- Select and consistently utilize a limited palette of materials, styles, colors, and textures
- Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter

**Design for Safety and Security:**
- Provide controlled points of entry
- Provide a well-drained, gently sloping, rock-free living space for each campsite
- Provide accessible sites
- When needed, provide low-level lighting that protects the night sky

**Structure Circulation:**
- Provide logical circulation networks that efficiently serve vehicles and pedestrians
- Cluster restrooms, potable water, and trash receptacles in common area
- Route vehicles on a one-way loop with back-in spurs or pull-through sites
- Provide accessible routes between campsites and amenities
Walk-in Camping Area

Toilet

CAMPGROUNDS

DESIGN GUIDELINES

Campground is paired with recreational amenities (boat launch, hiking trails); campsites offer views across lake

Adequate buffers (100') are provided between campsites and water

Campground layout takes advantage of rock outcrops and sparse shrub cover to offer sense of privacy for campers

Walkway is accessible to amenities and facilities

Campground layout takes advantage of rock outcrops and sparse shrub cover to offer sense of privacy for campers

Walkway is accessible to amenities and facilities

Pull-through sites do not require backing up and are easy to navigate for large vehicles

Individual sites should accommodate 2 vehicles each

Back-in parking spurs are convenient for campers; they facilitate easy transport of camping gear from car to campsite

Accessible sites are provided, with sufficient living space and proper grading and site furnishings

Toilets are accessible

Group family sites have adequate parking for at least 4 vehicles

Camping loop provides a variety of camping alternatives: single sites, family sites, and walk-in sites; RV and trailer camping is provided on a separate loop

Campsites are spaced far enough apart to allow privacy

A few clearly defined walkways provide access to central facilities (restrooms, picnic shelter) and prevent soil compaction from foot traffic

Campsites are positioned along one-way loop drive to minimize roadway width

RECREATION FACILITIES

CAMPGROUNDS

1

2

3

4

5

6

7
Accessible trail connects all camping loops and links different amenities within the recreation site.

Site with adequate space to provide multiple loops as well as room for future expansion.

Includes gates to permit closure of camping loops.

Gate and check-in station provides controlled point of entry for campground.

Boat launch and beach area are on a road spur separate from camping loops.

Camping for RVs and trailers is best accommodated on a separate loop.

THINK GREEN:
Reduce potable water use with:
- Vault, compost, or low-flow toilets
- Aerators on faucets
- Drip irrigation
- Rainwater harvesting
- Gray-water use

STANDARD PRACTICE:
- Living Space: 30’ X 30’
- Between sites: 70’ - 100’
- RV Parking Stall: 16’ X 52’
- Single Lane Road: 12’
**RECREATION FACILITIES**

**CAMPGROUNDS**

Horse Thief Campground, Utah

Vegetation and other natural features buffer campsites from road and neighbors

Gentle slope provides well-drained comfortable campsite

Clearly defined camp area reduces disturbance and limits erosion

Wheel stop limits vehicular access

Parking area is generous to provide for a variety of vehicle sizes plus space to move around the vehicle

Retaining wall preserves adjacent vegetation

Surface and adequate space around site fixtures ensures accessibility

Loon Lake Campground, Oregon
**BACK-IN CAMPSITE**

Groups of natural elements form barriers along spur and road

Generous parking stall provides for a variety of vehicle types

Existing vegetation is used as a buffer from other campsites

Adequate space around site elements ensures accessibility

**PULL-THROUGH CAMPSITE**

Pull-through parking provides easy access for large vehicles and trailers

Vegetated setback provides privacy for living space

Natural materials define site boundary

Adequate space around site elements ensures accessibility

Timber edge arrangement responds to natural elements on site
**SOMETHING TO CONSIDER:**
- Refer to Recreation Setting Characteristics Matrix in Appendix C, pgs. 204-205

**STANDARD PRACTICE:**
- Refer to U.S. Access Board Accessibility Guidelines for Outdoor Developed Areas

King Range National Conservation Area, California

2. Campground location takes advantage of dramatic views.

5. Natural barrier materials respond to landscape setting.

1-4. Preserved existing vegetation provides habitat and is used as a buffer between campsites.
PICNIC AREAS

Picnic areas provide a place for individuals and groups to relax, gather with family and friends, view nature, eat, rehydrate, and experience the natural character of our public lands. It is important for BLM to accommodate a wide range of uses within picnic units while minimizing resource and user conflicts. The overall objective is a comfortable picnic area—one that is durable, requires low maintenance, and is environmentally sensitive. Seek to design a cohesive family of site elements and shelters that combine to form a picnic area.

1. Plan for Use and Users:
   - Identify the users and their needs, and types and intensities of use
   - Consider long-term maintenance
   - Provide a variety of picnic opportunities
   - Assess the potential for vandalism and use fixtures and materials that are resistant to damage
   - Plan for accessibility
   - Provide protection from the elements (e.g., sun, rain, wind, snow) as needed
   - Provide parking for a range of vehicle sizes
   - Create an intuitive and recognizable entrance

2. Select Appropriate Site:
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Utilize vegetation, topography, or other natural features for screening
   - Maximize views of natural features and minimize views of picnic facilities
   - Locate adjacent to existing natural features (e.g., rock outcrops, vegetation)
   - Locate facilities on gently sloping terrain to minimize grading

3. Prepare Site Analysis:
   - Compile information about site conditions, including: natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for development
   - Identify views into and from picnic area
   - Clearly identify areas with safety and resource protection concerns
   - Study sun angles to best provide shade

4. Implement Green Strategies:
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
   - Restore disturbed areas after construction
   - Utilize renewable energy
   - Reduce water-use via water-efficient landscaping, waste-water technologies, high-efficiency fixtures, use of nonpotable water, etc.
   - Reuse/recycle where feasible and practical
   - Use renewable, local, and/or recycled content materials
   - Utilize above-ground stormwater management techniques (e.g., bioswales, filter strips, raingardens, etc.) adjacent to parking areas
   - Use pervious paving to reduce runoff and increase infiltration
   - Prevent, control, and/or remove noxious/invasive weed species
   - Consider life cycle costs of project

5. Design a Cohesive Environment:
   - View architectural design as an opportunity to enhance the sense of place and correspond to interpretive themes
   - View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
   - Create visual consistency between site materials and surrounding landscape
   - Correspond level of development to remoteness of setting
   - Use durable materials
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures
   - Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter

6. Design for Safety and Security:
   - Ensure proper grades, surfaces, and adequate space around site furniture to allow for accessibility
Goldbar Picnic Area, Utah

- Picnic area is oriented toward resource
- Structure takes solar orientation into account
- A matching family of materials are used to create a cohesive environment
- Concrete walk provides accessibility to shelter
- Wood barrier delineates pedestrian and vehicular areas
ACCESSIBLE PICNIC AREA

1. Shelter, movable tables, and dutch oven pit provide for social gatherings.
2. Barriers restrict shortcutting and delineate appropriate routes.
3. Regional materials are used to complement the natural setting.
4. Materials and forms are repeated throughout site to form a cohesive design.
5. A consistent architectural character is provided through the use of repeated elements and materials.
6. ADA-accessible ramp designed cohesively into hillside.

Seward Highway-Turnagain Arm Wayside, Alaska

Grand Staircase-Escalante National Monument
Glendale Contact Station, Utah
PICNIC AREAS

Cleveland-Lloyd Dinosaur Quarry Visitor Center, Utah

- Picnic area is located near visitor center
- Boulders were preserved in place and paths meander through the site, providing a unique visitor experience
- Hard surface provides accessibility to portions of the site

Joshua Tree National Park, California

- Picnic areas are located near natural features
- Material is selected to match landscape character

Red Springs Day Use Area, Nevada

- Structures provide shade to picnic areas and paved areas in a hot, arid climate
- Accessible parking space is near site amenities
- Native planting areas are incorporated into design
Boating Facilities

Bodies of water managed by BLM provide a range of opportunities for the public, from social gatherings by lakes to challenging white water rafting trips through wild and remote landscapes. Whether fishing or kayaking, water skiing or swimming, boating facilities provide access to ocean waters, rivers and streams, and lakes and reservoirs. Care should be taken to match the level of development to the setting and visitor experience objectives while also balancing protection of the natural resources.

1 Plan for Use and Users:
- Identify the users and their needs, and types and intensities of use
- Be guided by visitor experience objectives
- Consider long-term maintenance
- Separate vehicle and trailer parking
- Assess the potential for vandalism and use fixtures and materials that are resistant to damage
- Plan for accessibility
- Provide protection from the elements (i.e., sun, rain, wind, snow) as needed
- Provide parking for a range of vehicle sizes
- Create an intuitive and recognizable entrance
- Ensure access to water at high and low water levels

2 Select Appropriate Site:
- Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
- Protect scenic, cultural, and historic values
- Utilize vegetation, topography, or other natural features for screening
- Maximize views of natural features and minimize views of boating facilities
- Locate facilities on gently sloping terrain to minimize grading
- Select a natural inlet or eddy that is large enough to accommodate users
- Provide sufficient separation of parking areas from shoreline for buffer strips
- Locate boat ramp with southern exposure and on the consistently deeper side of the river for ease of launch during low flows

3 Prepare Site Analysis:
- Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
- Analyze site information to identify opportunities and constraints for development
- Identify views into and from boating facilities
- Clearly identify areas with safety and resource protection concerns

4 Implement Green Strategies:
- Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
- Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
- Restore disturbed areas after construction
- Rehabilitate/reuse/recycle where feasible and practical
- Use renewable, local, and/or recycled content materials
- Utilize above-ground stormwater management techniques (e.g., bioswales, filter strips, raingardens, etc.) adjacent to parking areas
- Consider pervious paving to reduce runoff and increase infiltration
- Prevent, control, and/or remove noxious/invasive weed species
- Provide shade to structures and paved areas when practical
- Consider life cycle costs of project
- Install permanent anchor buoys to mitigate anchor damage to bottom environments

5 Design a Cohesive Environment:
- View architectural design as an opportunity to enhance the sense of place and correspond to interpretive themes
- View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
- Create visual consistency between site materials and surrounding landscape
- Corrrect level of development to setting
- Use materials that are durable
- Select and consistently utilize a limited palette of materials, styles, colors, and textures
- Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter

6 Design for Safety and Security:
- Use barriers, grade-separated walks, striped crosswalks, and/or other means to create clearly defined, safe pedestrian zones in the vehicular area
- Provide adequate travel lane width, rigging and derigging areas, stall width and depth, sight lines, and turning radii for vehicles with trailers
- Ensure accessibility to piers, floats, ramps, walkways, and parking areas
- Separate traffic flow between commercial and private boaters
- For white water access ramps where rafts will be carried down to the river, provide a clear zone from vehicles for staging the rafts at launch point
**DESIGN GUIDELINES**

**BOATING FACILITIES**

**Blackwell Island Recreation Area, Idaho**

**SOMETHING TO CONSIDER:**

- Drain parking and drive areas away from water resource for sedimentation and pollution control
- Construct rock jetty to provide still water at ramp
- In rivers, angling boat ramps downstream reduces sideward push on boat as it is being loaded/unloaded

**STANDARD PRACTICE:**

- Motorized boat ramp: 12–15% slope
- Nonmotorized boat ramp: 5–10% slope
- Boat ramp width: 14' min.,/16' preferred

**SOMETHING TO CONSIDER:**

- Ramp slopes greater than 15% may result in vehicle slippage and the inability of driver to see trailer in rearview mirror
- Slopes less than 12% may require backing the vehicle into the water to reach a water depth sufficient for loading/unloading

**Elevated pathways are accessible**

**Access is limited to protect sensitive riparian ecosystem**

**Durable material is used to withstand heavy use and climatic factors**

**Vegetation is preserved in place to protect habitat and provide shade**

**Ramp is provided behind stream confluence to ensure still water at access**

**Lighting is provided along dock at ramps**
Various launch options are provided for different users, allowing safe separation and ample space on site.

Ramp creates eddy for still-water access.

Surface swales accept water from parking prior to draining to resource.

STANDARD PRACTICE:
- Refer to U.S. Access Board Accessibility Guidelines for Outdoor Developed Areas.

Space provided adjacent to ramp for safe gathering.

Consistent materials are used.

Dock is accessible.

Clearly defined pedestrian and vehicular routes.

Preserved vegetation provides shade at access point.

Light-colored paving reduces heat buildup while creating a long-lasting, low-maintenance ramp surface.

Access provides natural eddy to allow safe access to resource.

Commercial access requires larger ramp for boat launch and landing.
Blackwell Island Recreation Area, Idaho

Blackwell Island Recreation Area, Idaho

Pumphouse Recreation Site, Colorado

Pumphouse Recreation Site, Colorado

RECREATION FACILITIES

BOATING FACILITIES

DESIGN GUIDELINES

1. Preparation zone near ramp
2. Flat site allows for large vehicles with trailers to maneuver
3. Multiple ramps serve a variety of users
4. Lights provide safe access to ramp areas at night
5. Site fixtures are consistent throughout facility
6. Surfacing provides safe pedestrian access

Adequate space is provided for multiple kayaks and rafts

Cleanup zone located adjacent to dumpster for post boating cleanup

Separate vehicular and pedestrian uses for safety

Adequate space is provided for multiple kayaks and rafts

Flat site allows for large vehicles with trailers to maneuver

Multiple ramps serve a variety of users

Lights provide safe access to ramp areas at night

Site fixtures are consistent throughout facility

Surfacing provides safe pedestrian access
**OVERLOOKS & WAYSIDES**

Overlooks and waysides provide outstanding opportunities to share stories about the natural and cultural history of public lands. Many times, visitors travel through BLM lands by automobile, and their only interaction with the landscape may be at a scenic overlook. While at overlooks and waysides, visitors can develop a deeper connection to public lands, an important step in strengthening the image of BLM.

1. **Plan for Use and Users:**
   - Identify the users and their needs, and types and intensities of use
   - Consider long-term maintenance
   - Separate vehicular and pedestrian circulation
   - Assess the potential for vandalism and use fixtures and materials that are resistant to damage
   - Plan for accessibility
   - Provide protection from the elements (i.e., sun, rain, wind, snow) as needed
   - Provide parking for a range of vehicle sizes
   - Create an intuitive and recognizable entrance

2. **Select Appropriate Site:**
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Utilize vegetation, topography, or other natural features for screening
   - Locate viewpoints to capture prime views of attraction to reduce social trailing to alternative viewpoints
   - Utilize natural ridgelines, promontories, and cliffs to extend overview into viewing space

3. **Prepare Site Analysis:**
   - Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for development
   - Identify key views
   - Clearly identify areas with safety and resource protection concerns

4. **Implement Green Strategies:**
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
   - Restore disturbed areas after construction
   - Use renewable, local, and/or recycled content materials
   - Utilize above-ground stormwater management techniques (e.g., bioswales, filter strips, raingardens, etc.) adjacent to parking areas
   - Consider pervious paving to reduce runoff and increase water infiltration
   - Prevent, control, and/or remove noxious/invasive weed species
   - Provide shade to structures and paved areas when possible
   - Consider life cycle costs of project

5. **Design a Cohesive Environment:**
   - View architectural design as an opportunity to enhance the sense of place and correspond to interpretive themes
   - View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
   - Create visual consistency between site materials and surrounding landscape
   - Correspond level of development to setting
   - Use materials that are durable
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures
   - Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter

6. **Design for Safety and Security:**
   - Maintain safe viewing distances and construct barriers near steep slopes and cliffs
   - Provide accessibility

7. **Provide Information and Interpretation:**
   - Educate visitors about the unique features at the overlook or point of interest
   - Provide interpretation of natural and cultural history
   - Ensure interpretive information, structures, and panels are accessible and do not obstruct the view
Accessible path is provided to overlook

Viewing area utilizes a natural promontory

Barrier protects visitors along cliff

Interpretive exhibits are incorporated into barrier

Clear signage is included at proper location

Impervious surfaces drain to surface draining swales and away from resource

Trees provide shade to parking lot

Vehicular and pedestrian traffic is separated
Solid barriers guide visitors to amenity and information

Interpretive panels educate visitors about the unique qualities of the resource

Platform is extended into viewing area to enhance experience

Pavers infiltrate water, are attractive, and afford low maintenance

Overlook barrier blends seamlessly into existing rock formations

Appropriate heights and viewing angles for interpretive panels ensure accessibility

Projecting or extending the viewing platform into the amenity creates a dramatic panoramic

Vegetation and railing protect adjacent areas from erosion
Black Canyon of the Gunnison, Colorado

Overlook is located on natural promontory for expansive views

Regionally available materials are sustainable and respond to landscape setting

Materials provide a durable, sturdy and safe overlook that does not obscure the view

Overlook is sited to take advantage of panoramic views

Overlook surfacing is used to tell an interpretive story

Materials provide a durable, sturdy, and safe overlook

Interpretive panels educate visitors about the unique qualities of the site
TRAILHEADS

A well-functioning and attractive trailhead combines various site and architectural elements into one cohesive design. The sheer number of assets make this a challenge. Often, trailheads include many amenities, including shelters, kiosks, barriers, restrooms, signs, interpretive panels, and site furniture. To further complicate trailhead design, a variety of trail users come together in one place in anticipation of leaving their vehicles behind and exploring BLM lands. Clear circulation and direction is critical. Separation of pedestrians and vehicles is optimal. Information at the trailhead increases safety and pride of stewardship.

1 Plan for Use and Users:
- Identify the users and their needs, and types and intensities of use
- Be guided by visitor experience objectives
- Consider long-term maintenance
- Separate vehicular and pedestrian circulation
- Assess the potential for vandalism and use fixtures and materials that are resistant to damage
- Plan for accessibility
- Provide protection from the elements (i.e., sun, rain, wind, snow) as needed
- Provide parking for a range of vehicle sizes
- Create an intuitive and recognizable entrance

2 Select Appropriate Site:
- Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
- Protect scenic, cultural, and historic values
- Utilize vegetation, topography, or other natural features for screening
- Maximize views of natural features and minimize views of trailhead
- Locate facilities on gently sloping terrain to minimize grading

3 Prepare Site Analysis:
- Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
- Analyze site information to identify opportunities and constraints for development
- Identify views into and from trailheads
- Clearly identify areas with safety and resource protection concerns

4 Implement Green Strategies:
- Protect sensitive areas, including: stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
- Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
- Restore disturbed areas after construction
- Use renewable, local, and/or recycled content materials
- Utilize above-ground stormwater management techniques (e.g., bioswales, filter strips, raingardens, etc.) adjacent to parking areas
- Consider pervious paving to reduce runoff and increase water infiltration
- Prevent, control, and/or remove noxious/invasive weed species
- Provide shade to structures and paved areas when possible
- Consider life cycle costs of project

5 Design a Cohesive Environment:
- View architectural design as an opportunity to enhance the sense of place and correspond to interpretive themes
- View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
- Create visual consistency between site materials and surrounding landscape
- Correspond level of development to setting
- Use materials that are durable
- Select and consistently utilize a limited palette of materials, styles, colors, and textures
- Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter

6 Provide Information and Interpretation:
- Inform visitors about trail system use, safety, climate, and the local environment
- Inform visitors of the importance of preserving the resource they have come to enjoy
- Ensure information, interpretive structures, and panels are accessible
Disturbance is minimized by preserving existing vegetation.

Bridge is constructed of natural material to blend with landscape setting.

Meandering path fits naturally into landscape features.

Different surfaces provide accessible route to viewing area.

Materials found on site delineate pathway boundary.

Pedestrian and vehicular traffic is separated with barriers.

Kiosk located near parking provides information and interpretation.

Van-accessible parking.
Hall Ranch, Colorado

Kiosk provides interpretive and orientation information

Local masonry ensures structure blends with the landscape setting

A variety of user groups are accommodated with surfacing and trail width

Deciduous trees provide seasonal shade to rest and entry points

Common materials and design present a consistent architectural character
**RECREATION FACILITIES**

**TRAILHEADS**

**RECOMMENDATION**
- Multiple connections to trail minimize social trails
- Separate soft surface trail is provided for equestrians

**DESIGN GUIDELINES**
- Pedestrian and vehicular uses are separated through a change in materials
- Equestrian parking is separated from other uses
- Large turning radius and space is provided for larger vehicles

**SOMETHING TO CONSIDER:**
- Refer to Recreation Setting Characteristics Matrix in Appendix C, pgs. 204-205

**STANDARD PRACTICE:**
- Refer to U.S. Access Board Accessibility Guidelines for Outdoor Developed Areas

**Existing trees are preserved for shade and screening**

**Barriers guide vehicular traffic and restrict off-road access to protect surrounding landscape**
**TRAILS**

Trails are one of the primary means by which the public connects to and enjoys BLM lands. They provide opportunities for recreationally to explore nature, view inspiring scenery, experience solitude or spend time with family and friends, improve fitness, and challenge technical and physical abilities. Creating trails that provide these opportunities while minimizing conflicts among various types of users, as well as preventing damage to the resources that make the trail desirable to use, requires careful planning, design, construction, and maintenance.

1. **Plan for Use and Users:**
   - Identify the users and their needs, and types and intensities of use
   - Be guided by visitor experience objectives
   - Separate trail types as appropriate, and design for preferred use
   - Select appropriate surface materials
   - Plan for accessibility
   - Create an intuitive and recognizable entrance
   - Plan trails to connect recreational attractions and amenities
   - Consider pervious paving to reduce runoff and increase water infiltration
   - Prevent, control, and/or remove noxious/invasive weed species
   - Consider life cycle costs of project
   - Use elevated boardwalks or other protective measures when routing trails through sensitive areas as necessary

2. **Select Appropriate Site:**
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Utilize vegetation, topography, or other natural features for screening
   - Maximize views of natural features along trail
   - Locate on existing corridors only if they provide quality recreational experience and meet management strategies
   - Fit trail to contours to minimize grading and reduce erosion
   - Design trails with deliberate obstacles and technical trail features to include a less technical, alternative route
   - Use grade-separated crossings when crossing high-speed roads
   - All road crossings should be well-marked and located in areas of good sight distance

3. **Prepare Site Analysis:**
   - Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for trail construction
   - Identify key views to highlight along trail
   - Clearly identify areas with safety and resource protection concerns
   - Trails with deliberate obstacles and technical trail features should include a less technical, alternative route
   - Use grade-separated crossings when crossing high-speed roads
   - All road crossings should be well-marked and located in areas of good sight distance

4. **Implement Green Strategies:**
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction
   - Restore disturbed areas after construction
   - Use renewable, local, and/or recycled content materials
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction
   - Restore disturbed areas after construction
   - Use renewable, local, and/or recycled content materials

5. **Design a Cohesive Environment:**
   - View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
   - Create visual consistency between site materials and surrounding landscape
   - Correspond level of development to setting
   - Use materials that are durable
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures
   - Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter
   - Define trail edges with grade changes, vegetation, and natural obstacles

6. **Design For Safety and Security:**
   - Trails with deliberate obstacles and technical trail features should include a less technical, alternative route
   - Use grade-separated crossings when crossing high-speed roads
   - All road crossings should be well-marked and located in areas of good sight distance
   - Use “full bench” construction whenever possible
   - Locate trail switchbacks at control points, anchor points, or natural features to reduce shortcutting

7. **Consider Long-term Maintenance:**
   - Use renewable, local, and/or recycled content materials
   - Use “full bench” construction whenever possible
   - Locate trail switchbacks at control points, anchor points, or natural features to reduce shortcutting

8. **Provide Information and Interpretation:**
   - Educate visitors on the sensitivity of the landscape and how they can help maintain trails in the area
   - Consider providing interpretive media along the trail that connects users to the area’s natural and cultural history
UNDESIRABLE APPROACH

- Existing boulders and vegetation, changes in grade, and subtle use of small rocks delineate the trail edge and define the trail path; avoid unnatural linear arrangement of rocks

PREFERRED APPROACH

- Trail varies in grade and alignment to fit natural contours and create interest
- Crusher fines trail and width provides recreational access to a variety of trail users in both directions
- Trail corridor is defined with grade changes and local stones
- Trail displays balance of cut and fill construction

TRAIL STANDARDS

*Consult with BLM’s accessibility coordinator for recommendations and guidance.

**SHARED MULTI USE:**
- Tread Width 8’ – 12’
- Grades < 5%

**SHARED NON-MOTORIZED:**
- Tread Width 48”
- Grade < 10%

**SINGLE TRACK HIKING/BIKING TRAIL:**
- Tread Width 30”
- Grade +/- 10%

**FOOT ONLY:**
- Tread Width 24”
- Grade < 15%

Foothills Community Park, Colorado
Red Springs Day Use Area, Nevada

3 Site analysis identified wet meadow to be avoided
6 Accessibility is provided for the length of the trail
2 Boardwalk zigs and zags, creating a fun, interesting experience for user; provides a diversity of views and points of interpretation
6 Edge of boardwalk is defined with barrier
4 Elevated boardwalk eliminates social trails and reduces damage to this rare desert wet meadow

FULL-BENCH TRAIL CONSTRUCTION
Preferred due to stability, compaction, and reduced maintenance

Sheet drainage is preserved down hillside and across trail
Backslope (Max. of 60%)
Tread (outsloped for drainage (5% Max. cross slope)
Critical point (Rounded)

3 Rocky outcrop and narrow ledge provide control point for trail planning and layout
5 Native materials used to maintain landscape character

Rogue River Trail, Oregon
### TRAIL SURFACING ALTERNATIVES

<table>
<thead>
<tr>
<th>SURFACING MATERIAL</th>
<th>USE COMPATIBILITY</th>
<th>MAINTENANCE REQUIREMENTS</th>
<th>SERVICE LIFE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Surface</td>
<td>Natural surfing is compatible with: • pedestrians • equestrians • wide-tire bikes • OHVs</td>
<td>Minimal - High • Trailside erosion control • Vegetation control</td>
<td>Indefinite with ongoing maintenance</td>
</tr>
<tr>
<td>Crusher Fines (Decomposed Granite)</td>
<td>Crusher fines surfing is compatible with: • pedestrians • baby strollers • wheelchairs • wide-tire bikes</td>
<td>High • Replacement of dislodged fines • Trailside erosion control • Vegetation control</td>
<td>5 to 10 years</td>
</tr>
<tr>
<td>Asphalt</td>
<td>Asphalt surfing is compatible with: • pedestrians • baby strollers • wheelchairs • all types of bikes • inline skates and skateboards</td>
<td>Moderate • Sweeping • Pothole patching • Crack filling • Trailside erosion control • Vegetation control</td>
<td>Up to 15 years</td>
</tr>
<tr>
<td>Concrete</td>
<td>Concrete surfing is compatible with: • pedestrians • baby strollers • wheelchairs • all types of bikes • inline skates and skateboards</td>
<td>Moderate • Sweeping • Crack filling • Trailside erosion control • Vegetation control • Spall repairing</td>
<td>Up to 30 years</td>
</tr>
</tbody>
</table>

Red Rock Canyon National Conservation Area Visitor Center, Nevada
Wildwood Recreation Site, Oregon

3. Existing vegetation was preserved.

6. Asphalt trail provides accessibility to nearby overlook and amenities.

5. Trail edge is defined by boulders and trees.

7. In an area that receives substantial rainfall, asphalt trail reduces long-term maintenance.

Asphalt trail provides accessibility to nearby overlook and amenities.

3. Existing vegetation was preserved.

5. Trail edge is defined by boulders and trees.

6. Asphalt trail provides accessibility to nearby overlook and amenities.

In an area that receives substantial rainfall, asphalt trail reduces long-term maintenance.

SOMETHING TO CONSIDER:

- Refer to Recreation Setting Characteristics Matrix in Appendix C, pgs. 204-205.

STANDARD PRACTICE:

- Refer to U.S. Access Board Accessibility Guidelines for Outdoor Developed Areas.

Boardwalk protects adjacent vegetation and slope from erosion and habitat destruction.

Boardwalk ramp is accessible.

Red Springs Day Use Area, Nevada
**RECREATION FACILITIES**

*Wolf Creek Falls Trail, Oregon*

1. Equestrian trail, recreational trail, and drainage are separated.

2. Integrally colored concrete and stamped concrete walls match the landscape setting.

3. Bridge is located above 100-year floodplain.

4. Bridge provides unique viewing opportunities.

5. Materials match architectural and landscape character of a place.

*Sandia Peak Trail, New Mexico*

3. Existing rock feature is integrated into the trail design.

4. Trail follows natural contours of landscape.

5. Concrete color matches natural rock outcrop.

*Whisper Creek, Colorado*

1. Equestrian trail, recreational trail, and drainage are separated.

5. Integrally colored concrete and stamped concrete walls match the landscape setting.
ADMINISTRATIVE OFFICES

BLM administrative offices are typically located in cities and towns in close proximity to public lands. They are where BLM employees perform much of their day-to-day work, and they are also where the public comes to interact with staff when face-to-face meetings are needed. The quality of these facilities affects the health and well-being of the employees who spend many hours a week inside them. Quality facilities also contribute to the pride the workforce has in working for BLM as well as to the image the agency projects to the communities in which they are located.

1. Plan for Use and Users:
   - Identify the users and their needs, and types and intensities of use
   - Consider long-term maintenance
   - Develop a site plan that permits flexibility and allows for future expansion
   - Separate public and employee uses
   - Assess the potential for vandalism and use fixtures and materials that are resistant to damage
   - Plan for accessibility
   - Provide parking for a range of vehicle sizes
   - Create an intuitive and recognizable entrance
   - Provide comfortable interior and exterior spaces for employee use

2. Select Appropriate Site:
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Utilize vegetation, topography, or other natural features for screening
   - Maximize views
   - Locate near existing utilities, services, and transportation networks
   - Locate facilities on gently sloping terrain to minimize grading
   - Buffer entries and gathering spaces from prevailing winds

3. Prepare Site Analysis:
   - Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for development
   - Identify views to and from administrative facility
   - Clearly identify areas with safety and resource protection concerns
   - Study sun angles to best provide shade

4. Implement Green Strategies:
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
   - Restore disturbed areas after construction
   - Utilize renewable energy
   - Site building to optimize natural lighting and solar gain during the winter
   - Optimize energy performance through use of increased insulation, window glazing, installation of Energy Star rated products, etc.
   - Reduce water use via water-efficient landscaping, wastewater technologies, high-efficiency fixtures, use of nonpotable water, etc.
   - Ensure indoor environmental quality via use of low-emitting materials, ventilation, controllability of systems, day-lighting, views, etc.
   - Reuse and recycle where feasible and practical
   - Use renewable, local, and/or recycled content materials
   - Utilize above-ground stormwater management techniques (e.g., bioswales, filter strips, raingardens, etc.)
   - Use pervious paving to reduce runoff and increase water infiltration
   - Prevent, control, and/or remove noxious/invasive weed species
   - Consider life cycle costs of project

5. Design a Cohesive Environment:
   - View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
   - Install flagpole near facility entrance
   - Use durable materials
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures
   - Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter

6. Design for Safety and Security:
   - Provide accessibility to all areas
   - Include proper traffic and regulatory signage
   - Provide for safe storage and handling areas for potentially hazardous materials
San Juan Public Land Center, Colorado

1. Sign is prominent and legible
2. Deciduous trees shade building and parking in summer and allow passive solar heating in winter
3. Colors and materials of facade respond to urban landscape context
4. Large, operable windows increase indoor environmental quality
5. Light shelf shades window from direct summer sun and reflects indirect light into the building
6. Accessible parking spaces are near entry to building and ramp

Craig Field Office, Colorado

Flag helps to identify building as a Federal facility and shows where entrance is located

Large, operable windows increase indoor environmental quality

Light shelf shades window from direct summer sun and reflects indirect light into the building

Bollards help secure access to building
Full cut-off fixture protects night sky

Identification sign guides visitors

Building responds to architectural character of the region

Building mass is divided and creates accentuated entry

Low water use landscape

SOMETHING TO CONSIDER:

- Provide private spaces that allow for meeting with members of the public as well as working together in small groups
- Provide secure mail room
- Sign-in/sign-out area should be visible from the reception/phone operator desk

Reception area provides ample gathering space

Waiting room outside manager’s office allows for staff/visitor comfort

Small conference room is used often and for a variety of tasks
Craig Field Office, Colorado

- Clerestory windows provide natural day-lighting while light shield reflects light deep into space (4)
- Large, operable windows increase indoor environmental quality (4)

**THINK GREEN:**
- Reuse doors and ceiling tiles
- Recycle fluorescent bulbs
- Reuse electrical equipment, wiring, ceiling grid pieces, and duct work
- Recycle carpets, glass, cardboard boxes, and packing materials
- Recycle construction and demolition debris

**DESIGN GUIDELINES**

- All doors are secure (6)
- Occupied spaces and offices on perimeter of floor plan (4)
- Skylights/light tubes naturally illuminate interior spaces (4)
- Unoccupied support functions in interior of floor plan (4)
- Site amenities provided (1)
- Single primary control point at front desk (6)
- Airlocks at primary entrances (4)

**STRUCTURES & ASSOCIATED SPACES**

Preliminary Floor Plan - Fillmore Field Office, Utah
BLM visitor centers and contact stations are among some of the more highly visible and recognizable facilities constructed to provide information, interpretation, and visitor amenities to the general public. In many instances, the public’s first impression of BLM may be shaped by the experience they have at one of these facilities. Interacting with friendly, knowledgeable staff coupled with visiting a well-maintained facility that includes high-quality exhibits and programs reinforces the image of BLM as an agency focused on providing a high level of customer service and dedicated to fostering a connection with the natural and cultural heritage treasures it has been entrusted to oversee.

1. **Plan for Use and Users:**
   - Identify the users and their needs, and types and intensities of use
   - Consider long-term maintenance
   - Develop a site plan that permits flexibility and allows for future expansion
   - Separate public and employee uses
   - Assess the potential for vandalism and use fixtures and materials that are resistant to damage
   - Plan for accessibility
   - Provide parking for a range of vehicle sizes
   - Create an intuitive and recognizable entrance
   - Provide comfortable interior and exterior spaces for employee use
   - Provide visitor information and interpretation inside and outside

2. **Select Appropriate Site:**
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Utilize vegetation, topography, or other natural features for screening
   - Maximize views of natural features
   - Minimize views of utilities
   - Locate near existing utilities, services, and transportation networks
   - Locate facilities on gently sloping terrain to minimize grading
   - Buffer entries and gathering spaces from prevailing winds

3. **Prepare Site Analysis:**
   - Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for development
   - Identify views to and from visitor center
   - Clearly identify areas with safety and resource protection concerns
   - Study sun angles to best provide shade

4. **Implement Green Strategies:**
   - Protect sensitive areas, including: stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
   - Restore disturbed areas after construction
   - Use renewable energy
   - Utilize passive solar design techniques
   - Optimize energy performance through use of increased insulation, window glazing, installation of Energy Star-rated products, etc.
   - Reduce water use via water-efficient landscaping, wastewater technologies, high-efficiency fixtures, use of nonpotable water, etc.
   - Ensure indoor environmental quality via use of low-emitting materials, ventilation, controllability of systems, day-lighting, views, etc.
   - Reuse and recycle where feasible and practical
   - Use renewable, local, and/or recycled content materials
   - Utilize above-ground stormwater management techniques (e.g., bioswales, filter strips, rain gardens, etc.)
   - Use pervious paving to reduce runoff and increase water infiltration
   - Prevent, control, and/or remove noxious/invasive weed species
   - Provide shade to structures and paved areas
   - Consider life cycle costs of project

5. **Design a Cohesive Environment:**
   - View architectural design as an opportunity to enhance the sense of place and correspond to interpretive themes
   - View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
   - Create visual consistency between site materials and surrounding landscape
   - Use durable materials
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures
   - Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter

6. **Design for Safety and Security:**
   - Provide for safe storage and handling areas for potentially hazardous materials
   - Provide accessibility throughout the site
   - Clearly define safe pedestrian zone
VISITOR FACILITIES

Cleveland-Lloyd Dinosaur Quarry
Visitor Center, Utah

Clerestory and windows provide natural light

Colors and materials of the building and outdoor plaza are in harmony by use of natural materials

Outdoor spaces are inviting, shaded, include numerous options for seating

Trees provide shade and comfort

Plaza space is accessible

Colored concrete blends with landscape setting

THINK GREEN:

Alternative building materials:
- Adobe
- Cobb
- Light clay
- Straw-bale
- Bamboo
- Wheat-board
- Rubber
- Cork
Articulation of building mass provides visual interest

Large windows welcome visitors and create a sense of openness, allowing natural light into the facility

Arbor provides transition from indoor to outdoor space and provides shaded area

Native vegetation and stone respond to landscape setting

Large horizontal window connects indoor space to surrounding landscape

Materials (wood shingles, sandstone masonry) are appropriate to natural and cultural context; they are attractive and long lasting

Building reflects local vernacular architecture

Porch overhang shades facade to provide both energy savings and visitor comfort
**VISITOR FACILITIES**

Grand Staircase-Escalante National Monument  
Big Water Visitor Center, Utah

**DESIGN GUIDELINES**

1. Proper identification through prominent location of flag and sign
2. Variation in roof heights breaks up building mass
3. Roof pitch reflects slope of surrounding mountains
4. Entry is clearly defined and inviting to visitors with windows and overhang
5. Materials are coordinated and appropriate to setting
6. Small windows conserve heat in cold climate

**COLORS AND MATERIALS**

- Colors and materials blend seamlessly with surrounding landscape
- Renewable energy sources provide energy and are sited so that they do not detract from architecture of building
- Structure blends seamlessly with natural setting
- Articulation of building mass and coursing draws attention to and celebrates local landform
- Clerestory windows provide daylighting

**ARTIFICIAL LIGHTING**

- Roof pitch reflects slope of surrounding mountains

**STRUCTURES & ASSOCIATED SPACES**

1. Proper identification through prominent location of flag and sign
2. Variation in roof heights breaks up building mass
3. Roof pitch reflects slope of surrounding mountains
4. Entry is clearly defined and inviting to visitors with windows and overhang
5. Materials are coordinated and appropriate to setting
6. Small windows conserve heat in cold climate

- Artistic replicas of petroglyphs celebrate Paleo-Indian culture
- Building is constructed with earth bag architecture and natural plaster
- Cedar posts obtained from an area with a recent fire
- Fence provides visual screen of photovoltaic panels
- Materials are coordinated and appropriate to setting
Entry is accentuated and welcoming to visitors

Color of building exterior matches landscape setting

Entry walkway winds around slope, preserving natural feature

Wide walkway is accessible

Natural day-lighting helps reduce the need for artificial lighting

Combination of art and educational media provides interest for a diversity of visitors

Large open interior space allows for flexible interpretive design

Oregon Trail Interpretive Center, Oregon

California Trail Interpretive Center, Nevada
**VISITOR FACILITIES**

Grand Staircase-Escalante National Monument
Escalante Interagency Visitor Center, Utah

Wildwood Recreation Site, Oregon

Cleveland-Lloyd Dinosaur Quarry Visitor Center, Utah

**DESIGN GUIDELINES**

1. Visitors are welcomed through large outdoor plazas

5. Sculptures and exhibits may be used outdoors to draw attention and inspire connections to resources

5. Art piece incorporates natural elements from the landscape

4. Natural day-lighting helps reduce the need for artificial lighting

1. Educational media and interpretation is incorporated throughout

6. Accessible route

Stained concrete forms a durable, long-lasting, and easy to maintain surface.
Upper Missouri Breaks National Monument
Fort Benton Visitor Center, Montana

- Large windows allow passive solar gain
- Natural vegetation is preserved in place
- Outdoor space is accessible
- Views are maintained to natural water feature
- Meeting room is sized for large groups; space is flexible and can be used for multiple purposes
- Educational media and interpretation is incorporated on walls
VISITOR FACILITIES

Pompeys Pillar National Monument Interpretive Center, Montana

Computer visualizations help designs achieve an accurate relationship to site conditions

Pre-construction Site Visit - Future Location of Red Rock National Conservation Area Visitor Center, Nevada

Computer Visualization of Red Rock Canyon National Conservation Area Visitor Center, Nevada

Building design takes cues from agricultural structures in area

Natural vegetation is preserved in place

Curvilinear walk simulates the winding Missouri River

Walk is accessible

Native plant restoration enhances habitat and provides a buffer between parking area and visitor center

Pompeys Pillar National Monument Interpretive Center, Montana
FIRE FACILITIES

Fire facilities are often combined with other facilities and should be designed to provide a unified campus of structures that accommodate large vehicle use. Designs that address architectural character while considering potential expansion will be successful. Don’t forget the additional amenities that should be included when these facilities provide housing for fire crew members.

1 Plan for Use and Users:
   - Identify the users and their needs, and types and intensities of use
   - Consider long-term maintenance
   - Develop a site plan that permits flexibility and allows for future expansion
   - Consider large open areas for training opportunities
   - Protect facilities from theft and vandalism by providing barriers, security lighting, and authorized access
   - Plan for accessibility
   - Provide parking for a range of vehicle sizes
   - Create an intuitive and recognizable entrance
   - Provide comfortable interior and exterior spaces for employee use

2 Select Appropriate Site:
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Utilize vegetation, topography, or other natural features for screening
   - Maximize views of natural features and minimize views of facility
   - Locate near existing utilities, services, and transportation networks
   - Locate facilities on gently sloping terrain to minimize grading
   - Locate away from residential areas where screening is difficult
   - Buffer entries and gathering spaces from prevailing winds

3 Prepare Site Analysis:
   - Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for development
   - Identify views to and from fire facilities
   - Clearly identify areas with safety and resource protection concerns
   - Study sun angles to best provide shade

4 Implement Green Strategies:
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
   - Restore disturbed areas after construction
   - Use renewable energy
   - Utilize passive solar design techniques
   - Optimize energy performance through use of increased insulation, window glazing, installation of Energy Star-rated products, etc.
   - Reduce water use via water-efficient landscaping, wastewater technologies, high-efficiency fixtures, use of nonpotable water, etc.
   - Ensure indoor environmental quality via use of low-emitting materials, ventilation, controllability of systems, daylighting, views, etc.
   - Rehabilitate, reuse, and recycle where feasible and practical
   - Use renewable, local, and/or recycled content materials
   - Utilize above-ground stormwater management techniques (e.g., bioswales, filter strips, rain gardens, etc.) adjacent to parking areas
   - Use pervious paving to reduce runoff and increase infiltration
   - Prevent, control, and/or remove noxious/invasive weed species
   - Provide shade to structures and paved areas
   - Consider life cycle costs of project

5 Design a Cohesive Environment:
   - View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
   - Create visual consistency between site materials and surrounding landscape
   - Use materials that are durable and long lasting
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures
   - Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter

6 Design for Safety and Security:
   - Provide for safe storage and handling areas for potentially hazardous materials
   - Provide accessibility to building and site
   - Use fencing to secure equipment and materials
Cohesive use of materials unites site elements

- Full-cutoff and low-height lighting protects night sky
- Durable materials
- Trees provide shade and habitat
- Roof surface and angle allow for future photovoltaics
- Passive solar shading provided by large overhangs

SOMETHING TO CONSIDER:

- Provide electronic gates requiring entry cards at both entry and exit points
- Provide OSHA-compliant fall protection systems on PV panels that are mounted more than 48" above grade

THINK GREEN:

- Architecturally integrate photovoltaics into fire facilities and parking shade supports
Rogerson Fire Crew Quarters, Idaho

- Full-cutoff light fixtures reduce light pollution
- Large overhangs offer passive solar benefits, shading windows and interior spaces
- Operable windows allow personal comfort and ventilation
- Shade to parking will be provided by canopy trees
- Building finishes and plantings respond to landscape context

Jordan Fire Station, Montana

- Fence provides secure space and protects equipment
- Passive solar shading is provided with large overhangs
- Building color and material match the architectural and landscape character
- Sign provides proper identification of Federal facility
- Site is clearly defined and well organized
- Site is located close to highway
**STANDARD PRACTICE:**

- Purchase and specification of Energy Star-rated products is required per FAR Sections 23.203 and 52.223.15

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**STANDARD PRACTICE:**

- Mezzanines and storage lofts must be structurally designed to support calculated load limits.
- Load rating of mezzanine and storage loft must be clearly posted (lbs/sq ft).
- Properly designed guard rails must be installed to provide fall protection.

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Kanab Field Office, Utah

Safe enclosure for fire equipment
Maintenance buildings and wareyards are essential to the day-to-day operations performed by BLM employees. Government vehicles, equipment, and materials need to be protected from theft, vandalism, and deterioration. Even though these utilitarian storage facilities are not utilized by the public and are often screened from view, they should be designed to optimize functionality as well as to respond to the architectural and landscape character of the area where they are located.

Plan for Use and Users:
- Identify the users and their needs, and types and intensities of use
- Consider long-term maintenance
- Develop a site plan that permits flexibility and allows for future expansion
- Protect facilities from theft and vandalism by providing barriers, security lighting, and authorized access
- Plan for accessibility
- Provide parking for a range of vehicle sizes
- Create an intuitive and recognizable entrance
- Provide comfortable interior and exterior spaces for employee use
- Provide buffers so that maintenance areas do not disturb neighbors

Select Appropriate Site:
- Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
- Protect scenic, cultural, and historic values
- Utilize vegetation, topography, or other natural features for screening
- Minimize views of facility
- Locate near existing utilities, services, and transportation networks
- Locate facilities on gently sloping terrain to minimize grading
- Locate away from residential areas where screening is difficult
- Buffer entries and gathering spaces from prevailing winds

Prepare Site Analysis:
- Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
- Analyze site information to identify opportunities and constraints for development
- Clearly identify areas with safety and resource protection concerns
- Study sun angles to best provide shade

Implement Green Strategies:
- Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
- Define clear construction limits and construct temporary fencing to minimize soil compaction and damage to existing vegetation during construction
- Restore disturbed areas after construction
- Use renewable energy
- Utilize passive solar design techniques
- Optimize energy performance through use of on-site renewable energy, increased insulation, window glazing, and installation of Energy Star-rated products
- Reduce water use via water-efficient landscaping, wastewater technologies, high-efficiency fixtures, use of nonpotable water, etc.
- Ensure indoor environmental quality via use of low-emitting materials, ventilation, controllability of systems, day-lighting, views, etc.
- Rehabilitate, reuse, and recycle where feasible and practical
- Use renewable, local, and/or recycled content materials
- Utilize above-ground stormwater management techniques (e.g., bioswales, filter strips, raingardens, etc.) adjacent to parking areas
- Use pervious paving to reduce runoff and increase water infiltration
- Prevent, control, and/or remove noxious/invasive weed species
- Provide shade to structures and paved areas
- Consider life cycle costs of project

Design a Cohesive Environment:
- View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
- Create visual consistency between site materials and surrounding landscape
- Use materials that are durable and long lasting
- Select and consistently utilize a limited palette of materials, styles, colors, and textures
- Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter

Design for Safety and Security:
- Provide for safe storage and handling areas for potentially hazardous materials
- Provide accessibility to building and site
- Clearly define spaces and separation of uses
- Use fencing to secure equipment and materials
Barrier separates maintenance area from public areas

Create a campus-like setting separating pedestrian and vehicular activities

Area provided for potential expansion

Sufficient space is provided for large vehicles, storage of materials, and day-to-day operations

Wareyard is hidden from public view with solid fence

Site is secured through combination of fence and structure

Vehicular gate secures the site

Shade is provided on south side of building for energy savings

Shaded outdoor seating is provided for employees

Shaded outdoor seating and informational kiosk is provided for visitors

Identification sign and flag to guide visitors and create pride of ownership

Administration building blocks views of buildings and wareyard behind
Caliente Maintenance Wareyard, Nevada

Kanab Field Office, Utah

All buildings on site share similar materials, colors, and architectural character.

Site is clearly defined and well organized.

Buildings are functional, with clean lines and similar forms.

Passive solar strategies include large overhangs and proper building orientation.

Electric gate requires access card to exit as well as enter to prevent unauthorized exit.

Fence secures government property.

Hazardous materials are stored in appropriate structure.

Wareyard is sited behind administration building to screen maintenance operations from public view.
MAINTENANCE BUILDINGS & WAREYARDS

Kanab Field Office, Utah

Flat roof reduces height of structure and echoes horizontal lines of surrounding terrain

Building color blends with surrounding landscape

SOMETHING TO CONSIDER:

- Provide ASHA-compliant fall protection systems on PV panels mounted more than 48" above grade
- Include mezzanine storage in wareyard

Kanab Field Office, Utah

STANDARD PRACTICE:

- Mezzanines and storage lofts must be structurally designed to support calculated load limits
- Load rating of mezzanine and storage loft must be clearly posted (lbs/sq ft)
- Properly designed guard rails must be installed to provide fall protection

Kanab Field Office, Utah

THINK GREEN:

- Architecturally integrate photovoltaics into wareyard buildings and parking shade supports

Kanab Field Office, Utah

Simple enclosures in warehouse provide additional secure storage
RESTROOMS

The most important parameters to be considered in designing a restroom are location, visitor comfort, and sanitation. The cleanliness and practicality of the facility must remain first and foremost. However, restrooms should also fit in aesthetically with other site structures as well as complement the natural setting. Restrooms provide good opportunities to employ green technologies to express BLM’s land stewardship ethic.

1. **Plan for Use and Users:**
   - Identify the users and their needs, and types and intensities of use
   - Assess the potential for vandalism and use fixtures and materials that are resistant to damage
   - Plan for accessibility
   - View architectural design as an opportunity to enhance the sense of place

2. **Select Appropriate Site:**
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Utilize vegetation, topography, or other natural features for screening
   - Maximize views of natural features and minimize views of restrooms
   - Locate restrooms in relation to other facilities and circulation patterns to reduce social trailing
   - Locate restrooms on gently sloping terrain to minimize grading
   - Buffer entry from prevailing winds
   - Locate vault toilet-style restrooms down wind of other site amenities

3. **Prepare Site Analysis:**
   - Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for development
   - Identify views to restrooms
   - Clearly identify areas with safety and resource protection concerns

4. **Implement Green Strategies:**
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction

5. **Design a Cohesive Environment:**
   - View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
   - Create visual consistency between materials and surrounding landscape
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures

6. **Design for Safety and Security:**
   - Provide accessibility to restrooms and associated spaces
   - Eliminate visibility into restrooms by including visual barriers
   - Specify self-closing doors
   - Erect barriers to protect investment
   - If lighting is necessary, mount shielded and downward-focused fixtures to structure to minimize light pollution

7. **Plan For Maintenance:**
   - Consider long-term maintenance
   - Locate restrooms to allow for easy access for cleaning/maintenance
   - Make provisions to properly drain all pipes and fixtures based upon climate
   - Use materials that are durable
   - Slope concrete slab at 2% toward entrance door to facilitate drainage out of restroom

- Restore disturbed areas after construction
- Reduce water use via innovative wastewater technologies, high-efficiency fixtures, use of nonpotable water, etc.
- Use renewable, local, and/or recycled content materials
- Consider life cycle costs of project
- Include windows/skylights for day-lighting; if artificial lighting is needed, consider solar PV
- Utilize windows or openings above eye level for natural light and ventilation

**SITE:**
- SITE PLANNING | ROADS | PARKING | GRADING | DRAINAGE | VEGETATION | UTILITIES

**RECREATION FACILITIES:**
- CAMPGROUNDS | PICNIC AREAS | BOATING FACILITIES | OVERLOOKS & WAYSIDES | TRAILHEADS | TRAILS

**STRUCTURES AND ASSOCIATED SPACES:**
- ADMINISTRATIVE OFFICES | VISITOR FACILITIES | FIRE FACILITIES | MAINTENANCE BUILDINGS & WAREYARDS

**SITE FIXTURES:**
- RESTROOMS | SHELTERS | KIOSKS & INTERPRETIVE STRUCTURES
- BARRIERS | SITE FURNITURE | SIGNS | LIGHTING
Red Rock Canyon National Conservation Area, Nevada

- Skylights for light and ventilation
- Building colors blend with surrounding landscape
- Vault toilet uses no water
- Costs are reduced by providing unisex facility
- Barrier defines route to restrooms and provides fall protection across footbridge

Window provides natural light

Screening with natural materials matches setting

Vault toilet uses no water

Wild Rivers Recreation Area, New Mexico
Hall Ranch, Colorado

Restroom has architectural character similar to other site structures

Wildwood Recreation Site, Oregon

4 Clerestory windows provide light and ventilation to rest room

4 Roof is appropriately pitched for climate

6 Light increases safety and security in a dark rainforest environment

5 Architectural style matches character of local vernacular

5 Use of local river rock on base is appropriate for setting

6 Grade is maintained so that concrete pad is accessible
DESIGN GUIDELINES

1. Restroom is accessible
2. Lockable vault cover reduces likelihood of vandalism
3. Barriers protect surrounding vegetation
4. Views into restroom entries are screened
5. Architectural style matches character of local vernacular
6. Durable materials are used
7. Building colors and materials blend with landscape setting

Seward Highway-Turnagain Arm Wayside, Alaska

Grand Staircase-Escalante National Monument, Utah
Shelters on public lands provide a place for people to gather that is protected from the elements, whether it be wind, sun, rain, or snow. When sensitively designed and constructed, users feel safe and protected, but still connected to the natural environment they are visiting. As outdoor living spaces, shelters should be accessible, constructed of durable materials that require low maintenance, and be placed in the setting so as to complement the architectural and landscape character of the place.

1. **Plan for Use and Users:**
   - Identify the users and their needs, and types and intensities of use
   - Consider long-term maintenance
   - Assess the potential for vandalism and use fixtures and materials that are resistant to damage
   - Plan for accessibility
   - Allow sufficient space within shelter for users, furniture, and circulation

2. **Select Appropriate Site:**
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Utilize vegetation, topography, or other natural features for screening
   - Maximize views of natural features and minimize views of facility
   - Locate shelters in relation to other facilities and circulation patterns to reduce social trailing
   - Locate shelter on gently sloping terrain to minimize grading
   - Buffer from prevailing winds

3. **Prepare Site Analysis:**
   - Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for development
   - Identify views to and from shelter
   - Clearly identify areas with safety and resource protection concerns
   - Study sun angles to best provide shade

4. **Implement Green Strategies:**
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction
   - Restore disturbed areas after construction
   - Use renewable, local, and/or recycled content materials
   - Consider life cycle costs of project

5. **Design a Cohesive Environment:**
   - View architectural design as an opportunity to enhance the sense of place
   - View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
   - Create visual consistency between materials and surrounding landscape
   - Correspond scale, style, and durability of facility to setting
   - Use materials that are durable and long lasting
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures

6. **Design for Safety and Security:**
   - Ensure proper grades, surfaces, and adequate space for accessibility
   - Ensure the structural design accounts for calculated maximum wind and snow loads
SHELTERS

1. Stone matches the landscape character of the region.
2. Steel posts ensure long-lasting pergola with limited opportunity for vandalism.
3. Beams are sized to give a feeling of permanence.
4. Stone is locally available.

Zion National Park, Utah
Massing of timbers reflects local architectural vernacular.

Post detail mimics carving art of Northwest Native Americans.

Steep pitched roof is appropriate for rainforest climate.

Material colors blend with landscape setting.

Local stone.

Rounded wood posts and rails are used throughout site.

Shelter provides large gathering area with expansive views.
Timbers, stone, and metal are regionally available.

Shelter is sized to accommodate large events.

Large timber reflects the character of the forest.

Structure uses native stone to reflect local landscape character.

Ramp provides accessibility.
Kiosks and interpretive structures are commonly used to share both the cultural and environmental public lands stories, as well as the regulatory and safety information that must be communicated to help ensure a quality visitor experience and resource protection. Opportunities to convey those special stories of place are held not only in the interpretive panel’s text and graphics, but also in the architectural design of the structures that support them. When combined with interpretive panels, these structures provide great opportunities to design subtle forms that grow from the landscape, celebrate the local vernacular, and apply innovative green building techniques to express BLM’s commitment to quality design and land stewardship.

Plan for Use and Users:
1. Identify the function and use of kiosk/interpretive structure
2. Consider long-term maintenance
3. Assess the potential for vandalism and use fixtures and materials that are resistant to damage
4. Plan for accessibility
5. Provide protection from the elements (i.e., sun, rain, wind, snow) if needed

Select Appropriate Site:
1. Avoid sensitive habitat, steep slopes, and unstable soils
2. Protect scenic, cultural, and historic values
3. Utilize vegetation, topography, or other natural features for screening
4. Locate kiosk near entry to site and in relation to other facilities and circulation patterns to reduce social trailing
5. Locate interpretive structure with direct view to feature being interpreted
6. Locate on level to gently sloping terrain to minimize grading

Prepare Site Analysis:
1. Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
2. Analyze site information to identify opportunities and constraints for kiosk installation
3. Identify views to and from kiosk
4. Clearly identify areas with safety and resource protection concerns
5. Study sun angles to best provide shade

Implement Green Strategies:
1. Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
2. Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction
3. Restore disturbed areas after construction
4. Use renewable, local, and/or recycled content materials
5. Consider life cycle costs of project

Design a Cohesive Environment:
1. View architectural design as an opportunity to enhance the sense of place
2. View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
3. Create visual consistency between materials and surrounding landscape
4. Correspond scale, style, and durability of facility to setting
5. Use durable materials
6. Select and consistently utilize a limited palette of materials, styles, colors, and textures

Design for Safety and Security:
1. Build kiosks and interpretive structures to withstand calculated maximum wind loads

Kiosks and interpretive structures are commonly used to share both the cultural and environmental public lands stories, as well as the regulatory and safety information that must be communicated to help ensure a quality visitor experience and resource protection. Opportunities to convey those special stories of place are held not only in the interpretive panel’s text and graphics, but also in the architectural design of the structures that support them. When combined with interpretive panels, these structures provide great opportunities to design subtle forms that grow from the landscape, celebrate the local vernacular, and apply innovative green building techniques to express BLM’s commitment to quality design and land stewardship.

Plan for Use and Users:
1. Identify the function and use of kiosk/interpretive structure
2. Consider long-term maintenance
3. Assess the potential for vandalism and use fixtures and materials that are resistant to damage
4. Plan for accessibility
5. Provide protection from the elements (i.e., sun, rain, wind, snow) if needed

Select Appropriate Site:
1. Avoid sensitive habitat, steep slopes, and unstable soils
2. Protect scenic, cultural, and historic values
3. Utilize vegetation, topography, or other natural features for screening
4. Locate kiosk near entry to site and in relation to other facilities and circulation patterns to reduce social trailing
5. Locate interpretive structure with direct view to feature being interpreted
6. Locate on level to gently sloping terrain to minimize grading

Prepare Site Analysis:
1. Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
2. Analyze site information to identify opportunities and constraints for kiosk installation
3. Identify views to and from kiosk
4. Clearly identify areas with safety and resource protection concerns
5. Study sun angles to best provide shade

Implement Green Strategies:
1. Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
2. Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction
3. Restore disturbed areas after construction
4. Use renewable, local, and/or recycled content materials
5. Consider life cycle costs of project

Design a Cohesive Environment:
1. View architectural design as an opportunity to enhance the sense of place
2. View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
3. Create visual consistency between materials and surrounding landscape
4. Correspond scale, style, and durability of facility to setting
5. Use durable materials
6. Select and consistently utilize a limited palette of materials, styles, colors, and textures

Design for Safety and Security:
1. Build kiosks and interpretive structures to withstand calculated maximum wind loads
Shelter incorporated into kiosk gives protection to both visitors and panels.

Steel posts ensure long-lasting, vandal-resistant structure.

Interpretive panels are easily replaced by removing top bar.

Native stone columns reflect landscape character.

Crusher fines provides accessibility.

Grand Staircase-Escalante National Monument, Utah

McInnis Canyons National Conservation Area, Colorado
Matheson Wetlands Preserve, Utah

- Roof provides cover from elements
- Three panels provide varying levels of detailed information
- Large timbers reflect local architectural vernacular
- Panels are large and highly visible
- Natural wood structure is appropriate for setting
- Post anchors make replacement more manageable

McInnis Canyons National Conservation Area, Colorado

- Sand Flats Recreation Area, Utah

Rogue-Umpqua Scenic Byway, Oregon

- McInnis Canyons National Conservation Area, Colorado
- Post anchors make replacement more manageable
- Base is constructed of local stone
- Panels are large and highly visible
- Large timbers reflect local architectural vernacular

Matheson Wetlands Preserve, Utah

- Sand Flats Recreation Area, Utah
- Roof provides cover from elements
- Three panels provide varying levels of detailed information
- Large timbers reflect local architectural vernacular
- Panels are large and highly visible
- Natural wood structure is appropriate for setting
- Post anchors make replacement more manageable

Rogue-Umpqua Scenic Byway, Oregon

- McInnis Canyons National Conservation Area, Colorado
- Post anchors make replacement more manageable
- Base is constructed of local stone
- Panels are large and highly visible
- Large timbers reflect local architectural vernacular
- Natural wood structure is appropriate for setting
- Sand Flats Recreation Area, Utah
- Roof provides cover from elements
- Three panels provide varying levels of detailed information
- Large timbers reflect local architectural vernacular
- Panels are large and highly visible
- Natural wood structure is appropriate for setting
- Post anchors make replacement more manageable
Located on edge of path, this kiosk also serves as a barrier.

Durable materials are used.

Repeated use of wood forms on site creates consistent architectural elements.

Surface mounted for easy, quick repairs.

Use of traditional “rip-gut” fence reflects ranching culture of the region.

Incorporation of three-dimensional elements creates unique exhibit that interprets local wildlife.

1. Swan Falls Wayside, Idaho

2. Grand Staircase-Escalante National Monument Cannonville Visitor Facility, Utah

3. Red Rock Canyon National Conservation Area Visitor Center, Nevada
Whether a fence, wall, bollard, post, or boulder, physical barriers serve a similar purpose: protection. They can protect property, human safety, or natural or cultural resources. Careful selection of barriers can create a subtle yet clear boundary. The integration of barriers into the landscape is critical to reducing their visual impact.

1 Plan for Use and Users:
- Identify function and use of barriers
- Consider long-term maintenance
- Assess the potential for vandalism and use fixtures and materials that are resistant to damage
- Plan for accessibility

2 Select Appropriate Site:
- Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
- Protect scenic, cultural, and historic values
- Utilize vegetation, topography, or other natural features for screening
- Minimize use of constructed barriers by using natural barriers (i.e., topography, boulders/rock outcrops, vegetation) to degree possible

3 Prepare Site Analysis:
- Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
- Analyze site information to identify opportunities and constraints for barrier installation
- Clearly identify areas with safety and resource protection concerns

4 Implement Green Strategies:
- Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
- Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction
- Restore disturbed areas after construction
- Use renewable, local, and/or recycled content materials
- Consider life cycle costs of project

5 Design a Cohesive Environment:
- View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
- Create visual consistency between materials and surrounding landscape
- Correspond scale, style, and durability of barriers to setting
- Use materials that are durable
- Select and consistently utilize a limited palette of materials, styles, colors, and textures
DESIGN GUIDELINES

1. Boulders create a sturdy barrier between vehicular and pedestrian pathway.

4. Boulders found on site reduce cost.

5. Irregular placement, partial burial of boulders in small groups with plantings naturalize the barrier.

Interpretive signs are integrated into the barrier.

Stone material selection provides contextual link to adjacent landscape.

Height of wall is appropriate to limit access while providing accessible views and seating.

Stone wall fits the setting and creates a sense of permanence and quality.

Grand Canyon National Park, Arizona

Coos Bay, Oregon
Wood fence materials are available locally.
Use of "rip-gut" fence style reflects the regional character of the place.

Barrier is also an interpretive feature.

Simple, natural timber barrier is appropriate for setting.

Barbed wire fence provides a nearly invisible barrier at low cost and is low maintenance.

Fence is constructed with local materials and responds to character of place.

Fence allows wildlife to pass through while protecting property and resources.
Barrier uses local river stone

Barrier incorporates artistic elements that reflect local ecosystem

Minimal barrier allows a very open feel while effectively creating a barrier to vehicular access

Low-profile barrier is a subtle way to protect an area

Materials are readily available; barrier is a cost-effective solution

Details in the fence reflect local architectural vernacular

Gate provides secure vehicular access

Wood is locally available

Rock Springs, Wyoming

Wildwood Recreation Site, Oregon

Headwaters Forest Reserve, California
We take for granted the careful thought involved in proper selection of site furniture. Facilities with an organized and unified family of site furniture will function more efficiently and relieve visual clutter. Equally important to the location and material of the furniture is the manufacturing process from which it came. Look for durable products made from materials that are recycled and recyclable.

1 Plan for Use and Users:
   - Identify the function and use of site furniture
   - Consider long-term maintenance
   - Assess the potential for vandalism and use fixtures and materials that are resistant to damage
   - Plan for accessibility
   - Locate trash receptacles to allow for easy access for cleaning and maintenance

2 Select Appropriate Site:
   - Utilize vegetation, topography, or other natural features for screening
   - Locate site furniture in relation to facilities and circulation patterns to reduce social trailing
   - Locate site furniture on level to gently sloping terrain to minimize grading

3 Prepare Site Analysis:
   - Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for site furniture placement
   - Clearly identify areas with safety and resource protection concerns
   - Select furnishings that are flexible and will accommodate future changes in program

4 Implement Green Strategies:
   - Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction
   - Use renewable, local, and/or recycled content materials
   - Consider life cycle costs of project

5 Design a Cohesive Environment:
   - View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
   - Create visual consistency between materials and surrounding landscape
   - Correspond scale, style, and durability of site furniture to setting
   - Use materials that are durable and long lasting
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures

6 Design for Safety and Security:
   - Provide accessible site furniture
   - Select sturdy, well-anchored furniture
   - Avoid furniture with sharp corners or that are tripping hazards
Trash receptacle is animal proof

Trash receptacle is appropriately placed for maintenance personnel and user convenience

Water fountain is integrated into building facade

Bench is constructed of native stone to match building facade and landscape setting

Recycled materials

Furniture is sturdy and well anchored

Site fixtures are located in a high-use area

Red Rock Canyon Campground, Nevada

Grand Staircase-Escalante National Monument
Escalante Interagency Visitor Center, Utah

Cleveland-Lloyd Dinosaur Quarry, Utah
Site materials complement each other with similar colors.

Cleveland-Lloyd Dinosaur Quarry, Utah

Site fixtures are placed to allow accessible routes around various elements.

Joe T. Fallini Campground, Idaho

Site furniture is placed in a shaded area.

Water fountain matches architectural style of site and region.

Wildwood Recreation Site, Oregon

Local stone material is cost effective and requires little maintenance.

Grand Staircase-Escalante National Monument

Bench is located in the shade of the building.
SITE FIXTURES

Bike rack is constructed out of durable, long-lasting materials

Adequate space is provided around bike rack

Site furniture is placed in a shaded area

Wood is locally available

Accessible space located on side of table rather than end

Bench located at convergence of trails

Simple bench and muted color does not detract from surrounding environment

Grand Staircase-Escalante National Monument Escalante Interagency Visitor Center, Utah

North Umpqua Wild and Scenic River Trailhead, Oregon

Scott Matheson Wetlands Preserve, Moab, Utah
Effective communication requires clear, concise delivery of an understandable message through a powerful medium. Signs are one of BLM’s primary avenues of communicating with the public. They provide the most recognizable method of identifying BLM lands and facilities, and they play a major role in conveying a positive image of the agency. The BLM Sign Guidebook should be utilized to ensure signs are simple and uniform, are sized and located appropriately, and enhance the visitor experience. Preparing a Sign Plan is of utmost importance to determine whether signs are the best way to share messages and information. BLM signs are our “silent employees” and should be respected and carefully considered for the valuable roles they play.

1. **Plan for Use and Users:**
   - Identify the function and use of signs
   - Include signs in a communication strategy that dovetails with Resource Management Plans
   - Determine whether signs are best method of communicating information
   - Consider long-term maintenance
   - Assess the potential for vandalism and use fixtures and materials that are resistant to damage
   - Plan for accessibility
   - Identify viewer distance, location, and travel speed to determine effective sign and lettering size

2. **Select Appropriate Site:**
   - Avoid sensitive habitat, wildlife corridors, steep slopes, and unstable soils
   - Protect scenic, cultural, and historic values
   - Ensure clear visibility to sign face
   - Locate signs strategically to reduce number needed
   - Align large site signs 87-93 degrees to roadway
   - When adjacent to highways, locate according to DOT standards
   - Locate signs on right-hand side of roadway
   - Place site signs on approach at least 200 feet prior to site entrance

3. **Prepare Site Analysis:**
   - Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for sign placement

4. **Implement Green Strategies:**
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction
   - Use signs and posts containing post-consumer recycled content or biobased materials
   - Consider life cycle costs of project

5. **Design a Cohesive Environment:**
   - Maintain consistency with BLM Sign Standards following BLM Sign Guidebook
   - Use a coordinated system of identification, orientation, traffic control, and regulatory signs to reduce sign clutter
   - Ground large site signs to the landscape using bases that respond to setting
   - View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
   - Create visual consistency between materials and surrounding landscape
   - Correspond scale, style, and durability of signs to setting
   - Use materials that are durable and long lasting
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures
Sign materials match architectural and landscape character of area and other site structures

Sign is located where it is highly visible

Sign follows BLM-NLCS Standard

Grand Staircase-Escalante National Monument
Glendale Contact Station, Utah

RED ROCK CANYON
NATIONAL CONSERVATION AREA

Red Rock Canyon National Conservation Area Visitor Center, Nevada

STANDARD PRACTICE:
- Refer to BLM Sign Guidebook
- Consult National Sign Center for guidance on policy and purchasing
- Use post-consumer recycled content signs and posts per Executive Order 13423 and FAR Section 23.401 (b)(1)

Logo is large and reads well

Materials are consistent with contemporary style of facility

Sign is integrated into architecture
Carlin Canyon Historical Wayside, Nevada

Upper Missouri River Breaks National Monument, Montana

Agua Fria National Monument, Arizona

Smith River Falls Recreation Site, Oregon
**SITE FIXTURES**

**DESIGN GUIDELINES**

**SIGNS**

4. Sign contains post-consumer, recycled content materials

5. Timber sign base attached to rock reflects adjacent trees

**SOMETHING TO CONSIDER:**

- Do not rely on signs to improve poor site design

**THINK GREEN:**

- Signs from the National Sign Center contain post-consumer recycled and/or biobased materials
- Signs containing post-consumer recycled content are more resistant to vandalism than traditional wood signs

---

Grand Staircase-Escalante National Monument, Utah

- Sign is at proper angle and is highly visible from roadway
- Simple base creates minimal disturbance in landscape

Red Gulch Tracksite, Wyoming

- Weathering steel sign is low maintenance and appropriate to landscape setting

Blue Mesa Viewpoint, Utah

- Sign notifies driver of viewpoint an adequate distance from turn-off
- Natural timber post is indicative of landscape setting

San Pedro Riparian National Conservation Area, Arizona

- Sign contains post-consumer, recycled content materials
- Timber sign base attached to rock reflects adjacent trees
Lighting

One of the most outstanding sights we experience on our public lands is a dark night sky full of stars. Protecting this night sky is extremely important for both visitor enjoyment and to protect sensitive ecosystems from light pollution. It is critical to determine whether lighting is truly warranted in a given situation because "more light" does not translate to "increased safety." If it is deemed that lighting is necessary, identify where and when it is needed. Using a cohesive family of quality lighting fixtures and taking a sensitive approach to a lighting design will create safe and enjoyable spaces.

1. **Plan for Use and Users:**
   - Identify the function and use of lighting
   - Lighting should be carefully designed with regard to placement, intensity, timing, duration, and color
   - Consider long-term maintenance
   - Assess the potential for vandalism and use fixtures and materials that are resistant to damage
   - Plan for accessibility

2. **Select Appropriate Site:**
   - Avoid sensitive habitat and wildlife corridors
   - Protect scenic, cultural, and historic values
   - Utilize vegetation, topography, or other natural features for screening

3. **Prepare Site Analysis:**
   - Compile information about site conditions, including natural and built features, existing vegetation, soils, hydrology, topography, sun aspect, wind patterns, and precipitation
   - Analyze site information to identify opportunities and constraints for lighting installation
   - Identify views to lighting
   - Clearly identify areas with safety concerns where lighting is warranted

4. **Implement Green Strategies:**
   - Protect sensitive areas, including stream channels, floodplains, wetlands, erodible slopes, and existing vegetation
   - Define and flag clear construction limits to minimize soil compaction and damage to existing vegetation during construction
   - Minimize light trespass from development through optimal placement of fixtures to reduce impact on nocturnal environments
   - Consider use of timers and motion or light sensors, and use of full cutoff fixtures, low-angle spotlights, and low-reflectance surfaces
   - Use renewable energy sources and off-grid lighting such as photovoltaics
   - Use high-efficient fixtures and the lowest wattage lamp required
   - Use renewable, local, and/or recycled content materials
   - Consider life cycle costs of project

5. **Design a Cohesive Environment:**
   - View the entire site as a whole and design the facility to respond to the architectural and landscape character of the place
   - Create visual consistency between materials and surrounding landscape
   - Correspond scale, style, and durability of lighting to setting
   - Select and consistently utilize a limited palette of materials, styles, colors, and textures

6. **Design for Safety and Security:**
   - Select sturdy, well-anchored light fixtures
   - Avoid light fixtures with sharp edges or that are tripping hazards
The mission of the International Dark-Sky Association is to preserve and protect the nighttime environment and our heritage of dark skies through quality outdoor lighting. Information regarding the effects of light pollution and possible solutions is available at [http://www.darksky.org](http://www.darksky.org).

**SITE FIXTURES**

**Grand Staircase-Escalante National Monument**
**Big Water Visitor Center, Utah**

1. **Shielded lights protect night skies**
2. **Timers turn off lights after business hours**
3. **Bollard-style lights are used to delineate the pathway both day and night**
4. **Bollard lights increase safety of path**
5. **Light is solar powered**
6. **LED lights are an efficient light source with a long bulb life**
7. **Full cutoff fixture ensures that light is directed only below horizontal plane**
8. **Motion sensor turns light on only when activity is detected**

The International Dark-Sky Association promotes sustainable outdoor lighting solutions to protect the natural night sky and its valuable astronomical resources. For more information, visit their website at [http://www.darksky.org](http://www.darksky.org).
Light spill is reduced by use of down lights, directing light only where needed

Sight lighting is integrated into architecture

Red Rock Canyon National Conservation Area Visitor Center, Nevada

THINK GREEN:
Consider using:
- Photocells
- Timers
- Motion sensors
- Full cutoff fixtures
- LED bulbs
- Compact fluorescent bulbs
- Low-level lighting

California Trail Interpretive Center, Nevada
UNSHIELDED FIXTURES

DISCOURAGED
Fixtures that produce glare and light trespass

- Unshielded Floodlights
- Unshielded Wallpacks
- Sag-lens or Drop-lens with Exposed Light Source
- Unshielded “Colonial-type” Fixtures
- Unshielded Streetlight or Dusk-to-Dawn Security fixtures
- Drop-lens Canopy Fixtures

FULL CUT-OFF AND FULLY SHIELDED FIXTURES

ENCOURAGED
Fixtures that shield the light source to reduce glare and light trespass and to facilitate better vision at night

- Fully Shielded Fixtures
- “Full cutoff” Fixtures
- Fully Shielded Wallpacks
- Full Cutoff or Shielded “Colonial-type” Fixtures
- Flush-mounted Canopy Fixtures
APPENDIX A - SUMMARY OF SUSTAINABLE DESIGN, CONSTRUCTION, OPERATIONS, AND MAINTENANCE MANDATES FOR BLM-OWNED AND LEASED FACILITIES

The summary of sustainable mandates is intended to provide BLM personnel with a quick reference tool on requirements related to the following topics:

2. Use of Recovered/Recycled Content and Biobased Products
3. Energy Conservation
4. Renewable Energy
5. Water Conservation
6. Construction and Demolition Debris
7. Sustainable Operations and Maintenance

Specific references to the legislative, executive, Federal Acquisition Regulation (FAR), or BLM mandates are provided in brackets and italics.

1. GUIDING PRINCIPLES FOR FEDERAL LEADERSHIP IN HIGH PERFORMANCE AND SUSTAINABLE BUILDINGS (GUIDING PRINCIPLES)

a. All BLM construction, including build-to-suit leasing projects, new direct leases, and renovation projects over $2M, must incorporate the Guiding Principles.

All construction projects initiated in FY 2008 and beyond must meet Guiding Principle’s requirements. [Executive Order 13514, Section 2(g)(ii) and (iii)]

Those requirements include the following mandatory design/construction sustainable features:

- Integrated Design, including Integrated Project Team, Performance Goals, and Life Cycle Cost Analysis
- Commissioning of electrical and mechanical systems
- Water conservation [Executive Order 13423, Executive Order 13514, and EISA 2007]
- Ventilation and thermal comfort
- Moisture control
- Day-lighting
- Use of low-emitting materials
- Protect indoor air quality during construction
- Use of recyclable content products
- Use of biobased content products
- Divert (i.e., reuse or recycle) construction and demolition debris
- Use of non-ozone depleting compounds

The BLM Sustainable Building Implementation Plan issued via Washington Office Instruction Memorandum 2010-026 provides details on each of the above requirements. The BLM Sustainable Building Implementation Plan and Guiding Principles requirements are summary legislative and executive order mandates. A checklist of Guiding Principle’s mandates to be used during the planning, design, and construction of new construction projects and build-to-suit leases is provided as Appendix 2.B.1 of the BLM Sustainable Building Implementation Plan. (Note: A build-to-suit lease is defined as new construction.)

b. Construction, renovation, and build-to-suit leasing projects over 5,000 square feet must achieve third-party certification that they meet the Guiding Principles.

Construction, renovation, and build-to-suit leasing projects will achieve third-party certification that the project meets and/or exceeds the Guiding Principles. [BLM Sustainable Building Implementation Plan, Section 1.B.2.a (construction), Section 1.B.2.b (renovation), and Section 1.B.2.c (built-to-suit lease)]
c. **15% of BLM’s existing buildings and leases over 5,000 square feet must incorporate the Guiding Principles by FY 2015 with annual progress to towards 100% conformance.**

Existing buildings built prior to FY 2007 must also incorporate the Guiding Principles. BLM Sustainable Building Implementation Plan, Appendix 2.C.1, includes a checklist to be used to determine if an existing building conforms to the Guiding Principles. A checklist to determine if a new direct lease conforms to the Guiding Principles is provided as Appendix 2.B.2 of the BLM Sustainable Building Implementation Plan. Leases issued prior to FY 2008 must incorporate the Guiding Principles.

The Guiding Principles requirements for existing buildings are slightly different than for new construction. The primary differences are as follows:

- Guiding Principle I - requires recommissioning of existing Federal buildings, tailored to the size and complexity of each building and its system components. Building recommissioning must have been performed within four years prior to reporting a building as meeting the Guiding Principles.
- Guiding Principle II - requires a 20% reduction in energy consumption or a minimum Energy Star rating of 75 for existing Federal buildings.
- Guiding Principle III - requires a 20% reduction in indoor water use compared to a baseline conforming to EPAct 1992 fixture performance requirements. Water-efficient landscape and irrigation strategies are also required (including water reuse, water recycling, xeriscaping, etc.) to reduce outdoor potable water consumption by 50% over that consumed by conventional means.

2. **USE OF RECOVERED/RECYCLED CONTENT AND BIOBASED PRODUCTS**

EPA-designated recovered/recycled content and Department of Agriculture-designated biobased products must be specified and/or purchased unless the item cannot be acquired [FAR Section 23.404(b)(1)]:

- (i) Competitively within a reasonable time frame;
- (ii) Meeting reasonable performance standards; or
- (iii) At a reasonable price.

The above criteria describing when an EPA or Department of Agriculture environmentally preferable product must be purchased is taken from the FAR Section 23.404(b). The FAR does not define “reasonable time frame”, “reasonable performance standard,” or “reasonable price.”

FAR Section 23.400(a) states that EPA-designated recovered/recycled content products and Department of Agriculture-designated biobased products must be specified and/or purchased if $10,000 or more of the designated product is purchased by the agency (i.e., the Department of the Interior). Since the Department of the Interior’s collective purchases exceeds the threshold, BLM is required to purchase EPA-designated and Department of Agriculture-designated products.

a. **Contractors can be required to provide recovered/recycled content and biobased products.**

The FAR includes clauses that, when inserted into a contract, require offers to certify that the biobased or recovered materials products delivered or used in the contract meet the minimum percentages set by Department of Agriculture or EPA for those products. Clauses also exist that direct a contractor to make maximum use of biobased and EPA recovered/recycled content products. [FAR Subparts 52.223-1, 52.223-2, 52.223-4, 52.223-17 – “Contract Clauses for Biobased and CPG Products”]

b. **Written justification must be prepared if EPA recovered/recycled content product is not specified or purchased.**

A written justification must be prepared when an EPA-designated recovered/recycled content product is not purchased. [FAR Section 23.405(c) and BLM Green Purchasing Plan Sections 7.1, 7.2, and 9.4.2] The form on which the justification is to be documented is provided in Appendix 2 of BLM’s Green Purchasing Plan.

BLM contracting officers, requisitioners, or credit card holders are required to complete the written justification, depending on the type of purchase or acquisition. Section 7.1 of the Green Purchasing Plan addresses the acquisition staff’s responsibilities in regard to preparation of the written justification. Section 7.2 of the plan addresses the requisitioners’ and credit card holders’ responsibilities.
c. **The types of recovered/recycled content, biobased products, Energy Star, and WaterSense products that must be purchased or specified.**

A compilation of green products has been prepared by the Office of the Federal Environmental Executive. This compilation can be downloaded at: [http://www.fedcenter.gov/programs/buygreen/](http://www.fedcenter.gov/programs/buygreen/) by clicking on the Excel spreadsheet icon titled “Green Products Compilation,” or email BLM’s CASHE Program Lead to request a copy.

The compilation is organized by product use not by type of product (i.e., whether it is a recovered/recycled content, biobased, Energy Star, or WaterSense designated product). There are 18 general categories including, but not limited to, the following:

- Building Construction
- Building Finishes
- Building Interior
- Non-paper Office Products
- Office Electronics
- Parks and Recreation
- Roadway Construction
- Traffic Design

BLM’s Green Purchasing Plan also has a summary of the agency’s most commonly used, environmentally preferable products (Appendix 1). The appendix has numerous hyperlinks that provide specifics on the mandated recovered/recycled or biobased content or how much energy or water is saved by the product to meet the designation. The plan also provides information on where to purchase these environmentally preferable products.  

[BLM Green Purchasing Plan, Appendix 1 issued via Washington Office Instruction Memorandum 2009-166]

3. **ENERGY CONSERVATION**

a. **Existing buildings energy use intensity must be reduced by 30% from FY 2003 baseline.**

Each Federal agency is required to apply energy conservation measures to new and existing Federal buildings so that the energy consumption per gross square foot of floor area in fiscal years 2006-2015 is reduced by 3% each fiscal year starting in 2006 through 2016, for a total reduction of 30% based on energy consumption for fiscal year 2003.  

[Energy Independence and Security Act of 2007, Section 431] BLM will achieve compliance with this requirement with the completion of the third phase of the Energy Savings Performance Contract issued by the National Operations Center.

b. **BLM buildings built after FY 2007 must consume 30% less energy.**

Federal buildings (commercial or residential) must be designed so they consume 30% less energy (20% less for renovations) than buildings that meet the requirements of ASHRAE 90.1-2004 or the 2004 IECC (International Energy Conservation Code), where life-cycle cost effective.  


c. **Energy Star products must be purchased and specified regardless of cost.**

Energy-consuming products that are Energy Star rated (e.g., office equipment, home electronics, heating and cooling equipment, building construction products, appliances, and lighting) must always be specified and/or purchased regardless of cost.  

[FAR Section 23.203 and Executive Order 13514, Section 2(i)(iv)]

A list of Energy Star-designated products commonly purchased by BLM is provided in Appendix 1 of the BLM Green Purchasing Plan [issued via Washington Office Instruction Memorandum 2009-166].

FAR Section 23.204 – “Procurement Exemption” does provide two exemptions under which a BLM office would not have to purchase Energy Star products, but it is highly unlikely that the facility would qualify for either of them. The FAR states that the Secretary of the Interior must determine in writing that there is no Energy Star product that is reasonably available that meets the functional requirements of the agency or that no Energy Star product is cost effective over the life of the product. Therefore, this plan simply states that Energy Star products must be specified and/or purchased because it is highly unlikely that BLM would pursue having an exemption determination made by the Secretary.
d. **Energy Star products must be provided by contractors.**

Construction contractors are to ensure that energy-consuming products specified in the contract be Energy Star rated if those products are listed in the Energy Star Program if the appropriate FAR clauses are inserted into the contract. [FAR Section 52.223.15, Energy Efficiency in Energy-Consuming Products]

e. **Energy conservation audits must be completed every four years.**

Comprehensive energy audits at facilities that comprise 75% of BLM’s energy usage must be performed every four years. The National Operations Center Architecture and Engineering Branch plans to perform these energy audits through the use of an Energy Management Information System that will be in operation by FY 2012, and through the CASHE Program. [Energy Independence and Security Act of 2007, Section 432, paragraph 3(A)]

f. **Fossil fuel consumption must be reduced.**

New Federal buildings and Federal buildings undergoing major renovations must be designed such that fossil fuel-generated energy consumption is reduced (as compared with such energy consumption by a similar building in fiscal year 2003) by the percentages shown in the following table: [Energy Independence and Security Act of 2007, Section 433]

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Percent Reduction in Fossil Fuel Consumption</th>
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</thead>
<tbody>
<tr>
<td>2010</td>
<td>55</td>
</tr>
<tr>
<td>2015</td>
<td>65</td>
</tr>
<tr>
<td>2020</td>
<td>80</td>
</tr>
<tr>
<td>2025</td>
<td>90</td>
</tr>
<tr>
<td>2030</td>
<td>100</td>
</tr>
</tbody>
</table>

g. **Advanced metering is required on all BLM-owned facilities that use more than $20,000 of electricity annually.**

Electrical energy use in Federal buildings must be metered with advanced meters “for the purposes of efficient energy use and reduction in the cost of electricity used in such buildings “by October 1, 2012. Advanced meters or metering devices must upload stored data at least daily and measure the consumption of electricity at least hourly. Current BLM policy is to install advanced meters on all BLM-owned facilities that use more than $20,000 of electricity per year. [Energy Policy Act of 2005 Section 103] Advance meters have been installed at all BLM-owned buildings that were in operation by 2010 by the Energy Savings Performance Contracts awarded by the National Operations Center.

h. **Data Centers must implement best practices.**

Federal agencies are required to implement best management practices for the energy-efficient management of data servers and Federal data centers (this includes server virtualization and energy-efficient HVAC system implementation). Virtualization consists of a software solution that allows a single server processor to act as if it were multiple server processors. Typical processor utilization is in the range of 5% to 15%; virtualization enables processor utilization to be raised into the 85% to 90% range. This allows fewer physical processors to do the same work, reducing overall energy consumption – ratios of reductions in physical servers can be from 7:1 to as much as 30:1. See http://www.bchydro.com/powersmart/commercial/data_centre_and_server.html for more information. [Executive Order 13514, Section 2(i)(v)]

4. **RENEWABLE ENERGY**

a. **Renewable energy must provide at least 7.5% of BLM’s energy requirements by FY 2013**

The Federal Government’s renewable electricity production must meet or exceed 3% of total electrical energy consumption for fiscal years 2007-2009, with increases to at least 5% in fiscal years 2010-2012 and 7.5% in 2013 and thereafter. This
legislation also establishes a double credit bonus for Federal agencies if the renewable electricity is produced onsite at a Federal facility, on Federal lands, or on Native American lands. [Energy Policy Action of 2005, Section 203] BLM will exceed this requirement with the completion of the renewable energy projects constructed by the Energy Savings Performance Contract awarded by the National Operations Center in FY 2010.

b. **Domestic hot water is to be offset with solar domestic hot water.**

Domestic hot water heating energy use in new Federal buildings and Federal buildings undergoing major renovations are to be offset with solar water heating equipment, where life-cycle cost effective. [Energy Independence and Security Act of 2007, Section 523]

c. **Energy use must be net zero for new buildings by FY 2030.**

Federal agencies must ensure that all new Federal buildings entering the design phase in 2020 or later are designed to achieve zero net energy by 2030. [Executive Order 13514 Section 2(d)(ii)]

5. **WATER CONSERVATION**

a. **Reduce building water use intensity by 26% by FY 2020**

Water use intensity (gallons per gross square foot of floor area) must be reduced by 2% each year through fiscal year 2020 for a total of 26%, based on water consumption for fiscal year 2007 (this is an extension of the E.O. 13423 requirements for reducing potable water use from 2015 to 2020). [Executive Order 13514 Section 2(d)(ii)]

b. **Industrial, landscaping, and agricultural water consumption must be reduced by 20% by FY 2020.**

Water consumption must be reduced by 2 percent annually or 20 percent by the end of fiscal year 2020 relative to a baseline of the agency's industrial, landscaping, and agricultural water consumption in fiscal year 2010. [Executive Order 13514 Section 2(d)(iii)]

c. **WaterSense plumbing fixtures and irrigation control systems must be purchased and specified.**

Plumbing fixtures (e.g., sink faucets, toilets, urinals, shower heads) and irrigation control systems must be WaterSense-rated products that comply with the EPA's standards for water-efficient products and must be specified and purchased. [Executive Order 13423, Section 2(d)]

d. **Water conservation audits must be completed every 4 years.**

Comprehensive water audits at facilities that comprise 75% of BLM’s water usage must be performed every four years. The National Operations Center Architecture and Engineering Branch plans to perform these energy audits through the use of an Energy Management Information System that will be in operation by FY 2012 and through the CASHE Program. [Energy Independence and Security Act of 2007, Section 432, paragraph 3(A)]

6. **CONSTRUCTION AND DEMOLITION DEBRIS**

a. **At least 50% of construction and demolition debris must be recycled by FY 2015.**

Construction and demolition materials and debris means materials and debris generated during construction, renovation, demolition, or dismantling of all structures and buildings and associated infrastructure. At least 50% of construction and demolition materials and debris must be recycled by the end of FY 2015. [Executive Order 13514, Section 2(e)(iii)] The National Operations Center Architecture and Engineering Group has already revised MasterSpec and incorporated this requirement into Section 01524 - Construction Waste Management specification.
7. SUSTAINABLE OPERATIONS AND MAINTENANCE

a. Green janitorial services and lighting maintenance must be specified.

Green preferable janitorial services and lighting maintenance must be specified. The requirements in this specification are to be used by all organizational units in leased or owned space when a new contract is awarded or when an option is picked up, whichever occurs first. [BLM Green Purchasing Plan, Section 9.2.3. issued via Washington Office Instruction Memorandum 2009-166] These requirements have already been incorporated into BLM’s standard space leasing contract. A sample specification for green janitorial services and lighting maintenance is provided in Appendix 4 of BLM’s Green Purchasing Plan. The specification has the following green requirements:

- Use of green cleaning products;
- Stocking and use of paper products and trash can liners that are compliant with EPA’s CPG requirements for recovered/recycled content;
- Use of energy-efficient low-mercury fluorescent lamps and compact fluorescent bulbs; and
- Recycling of spent and broken fluorescent lamps and compact fluorescent bulbs.

b. Building operations and maintenance must be sustainable.

BLM will have invested more than $25M in energy conservation measures and renewable energy generation at BLM-owned facilities when the third phase of the Energy Savings Performance Contract is completed in FY 2011. Executive Order 13514 and the BLM Sustainable Building Implementation Plan require that BLM manage new and previously installed building systems to reduce the consumption of energy, water, and materials, and identify alternatives to renovation that reduce existing assets’ deferred maintenance costs. [Executive Order 13514, Section 2(g)(v) and the BLM Sustainable Building Implementation Plan, Section 3A]

The sustainable operations and maintenance practices that BLM facilities are required to implement include, but are not limited to, the following: [BLM Sustainable Building Implementation Plan, Appendix 3.A.1]

- Use integrated design principles
- Commissioning
- Optimize energy performance
- Perform energy audits
- Protect and conserve water
- Enhance indoor air quality
- Use recycled and biobased products

Appendix 3.A.1 of the Sustainable Building Implementation Plan is a checklist that identifies dozens of sustainable practices related to the operation and maintenance of BLM-owned and leased facilities.

c. Greenhouse gas management must be implemented.

Federal agencies must establish a fiscal year 2020 target for their greenhouse gas (GHG) reduction percentage relative to a fiscal year 2008 baseline and must establish a comprehensive inventory of GHGs for fiscal year 2010. Since GHG emissions are intimately tied to building energy use efficiency, it is essential that BLM owned and leased facilities be efficiently operated and maintained.
## APPENDIX B - GQBE PROJECT WORKSHEET

This worksheet allows for tracking and documenting a project through all phases of development, from land use planning reviews through to operations and maintenance. Its utilization ensures that necessary information has been considered during project planning and design, and management, as well as that details and contacts needed for facility operation and maintenance are readily accessible. Refer to page 196 for a completed sample worksheet.

### PROJECT INFORMATION

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Project Location</th>
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<tr>
<th>Project Description/ Narrative</th>
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### LAND USE PLANNING

<table>
<thead>
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<th>Name of Management Plan (MP)</th>
<th>Date MP Approved</th>
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<tbody>
<tr>
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</tbody>
</table>

List MP decisions relevant to proposed project

List other planning documents relevant to project (e.g., County General Plans, Corridor Management Plans, etc.) and direction they provide.

What are the primary land uses in the vicinity of the proposed project?

What is preliminary cost estimate for the proposed project?
Identify potential funding sources.

<table>
<thead>
<tr>
<th>ACTIVITY LEVEL PLANNING</th>
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</thead>
<tbody>
<tr>
<td>Name of Activity Level Plan</td>
</tr>
<tr>
<td>List Activity Level Plan decisions relevant to proposed project.</td>
</tr>
</tbody>
</table>

List Management Constraints (e.g., VRM Class, Special Designations, etc.) of project area.

<table>
<thead>
<tr>
<th>PROJECT PLANNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Lead/Project Manager</td>
</tr>
<tr>
<td>Project Planning Team Members</td>
</tr>
<tr>
<td>How will public scoping be provided?</td>
</tr>
</tbody>
</table>

PREPARE SITE ANALYSIS. Describe the project area's NATURAL ENVIRONMENT.

- Elevation
- Fire Danger
- Geology
- Paleontology
- Prevailing Winds
- Soils
- Temperature/Precipitation
<table>
<thead>
<tr>
<th>Topography</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetation (including special status species and invasive species concerns)</td>
</tr>
<tr>
<td>Water Resources/Hydrology (including wetlands, riparian, floodplains, water quality, etc.)</td>
</tr>
<tr>
<td>Wildlife (including birds and fish)</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Describe the LANDSCAPE CHARACTER (form, line, color, texture).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line</td>
</tr>
<tr>
<td>Color</td>
</tr>
<tr>
<td>Texture</td>
</tr>
</tbody>
</table>

| Describe the project area’s BUILT ENVIRONMENT. |
| Access (Vehicular and Pedestrian) |
| Existing Structures |
| Utility Connections |
| Heritage Resources (archaeology, historic sites, etc.) |
| Other |
| Describe the ARCHITECTURAL CHARACTER. |

| Prepare USER ANALYSIS. |
| Describe the SOCIOECONOMICS. |
| Use and Users |
Permitted Activities (Recreation, Grazing, etc.)

Economic Profile

Other

Describe the DESIGN PROGRAM.

What is the PRELIMINARY BUDGET?

What are the GREEN BUILDING goals and requirements of the project?

What are the proposed PROJECT SCHEDULE milestones?

Who will prepare the Project Data Sheet and submit it for funding?

### 4 CONCEPTUAL DESIGN

<table>
<thead>
<tr>
<th>Design Lead</th>
<th>Date Conceptual Design Initiated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Project Design Team Members

Detail the FINAL DESIGN PROGRAM for the FINAL CONCEPTUAL DESIGN.

What is the COST from the Class C Cost Estimate?

Is the project registered for any GREEN PROGRAMS? If so, which one(s)?
If needed, has NEPA been finalized and provided to Design Lead? If so, when and by whom?

How will the project be constructed?

<table>
<thead>
<tr>
<th>Conceptual Design Approved by</th>
<th>Date FINAL CONCEPTUAL DESIGN Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**5 DESIGN DEVELOPMENT**

<table>
<thead>
<tr>
<th>Design Lead</th>
<th>Date DESIGN DEVELOPMENT PLAN Initiated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note when DESIGN REVIEWS are conducted.

Were GQBE PRINCIPLES and other design parameters incorporated into design?

If needed, has VALUE ENGINEERING been completed?

If project is to be constructed via contract, what type and bid method?

What is the COST from the Class B Cost Estimate?

List any LOCAL PLANNING / ZONING / PERMITTING COORDINATION needed.

<table>
<thead>
<tr>
<th>DESIGN DEVELOPMENT PLAN Approved by</th>
<th>Date DESIGN DEVELOPMENT PLAN Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**6 CONSTRUCTION DOCUMENTS (CDs)**

<table>
<thead>
<tr>
<th>CDs Prepared by</th>
<th>Date CDs Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What is the COST from the FINAL Cost Estimate?

Are GREEN PROGRAM submittals needed? If so, which ones and when submitted?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### PROCUREMENT / CONSTRUCTION

<table>
<thead>
<tr>
<th>What are the FUNDING CODES?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTRACTING OFFICER (CO)</td>
<td>Date PURCHASE REQUEST (PR) submitted</td>
</tr>
<tr>
<td>CONTRACTING OFFICER REPRESENTATIVE (COR)</td>
<td>PROJECT INSPECTOR (PI)</td>
</tr>
<tr>
<td>Bid Dates:</td>
<td>Date for Pre-Bid Meeting</td>
</tr>
<tr>
<td>Construction Contract Awarded to?</td>
<td></td>
</tr>
<tr>
<td>What is the final BID AMOUNT with CONTINGENCIES?</td>
<td></td>
</tr>
<tr>
<td>Date for Pre-Work Meeting?</td>
<td>Contract schedule dates?</td>
</tr>
<tr>
<td>Date facility COMPLETED</td>
<td></td>
</tr>
<tr>
<td>Walk-through/Punch list items</td>
<td></td>
</tr>
<tr>
<td>What were the results of FINAL COMMISSIONING/TESTING?</td>
<td></td>
</tr>
<tr>
<td>Were AS-BUILT DRAWINGS and Operations and Maintenance Manuals provided up completion? To Whom?</td>
<td></td>
</tr>
</tbody>
</table>

### POST-CONSTRUCTION / MAINTENANCE

| Date facility ACCEPTED by Government | Facility accepted and approved by |
Date FACILITY open for use | Date of CELEBRATION EVENT
---|---

Provide a brief PERFORMANCE REVIEW of project construction.

List SPECIAL MAINTENANCE REQUIREMENTS for the life of project.

List the WARRANTIES and their expiration dates associated with project.

Was project submitted for USGBC LEED or other green building rating programs? If so, what level did it achieve?

Was project entered into Facilities Asset Management System (FAMS)? By whom?

What was the final construction PROJECT COST (Design, Construction, and Project Management)?
**PROJECT INFORMATION**

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Project Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greendale Contact Station</td>
<td>270 N Main</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Lead</th>
<th>Project Initiation Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susan Jones</td>
<td>February 2004</td>
</tr>
</tbody>
</table>

**Project Description/ Narrative**

Develop a non-staffed contact station to provide traveler comfort facilities and visitor information about the Big Sage National Monument (BSNM) and surrounding areas in Greendale, Utah. Project to provide places to picnic, information/interpretative opportunities, and restrooms. Project site is located along HWY 98 in the Town of Greendale.

**LAND USE PLANNING**

<table>
<thead>
<tr>
<th>Name of Management Plan (MP)</th>
<th>Date MP Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Sage National Monument (BSNM) Management Plan</td>
<td>February 2000</td>
</tr>
</tbody>
</table>

List MP decisions relevant to proposed project

Decision FACILITIES-1 which states:

*In an effort to protect Monument resources and provide economic opportunities in the local communities, major facilities and the services associated with them will be located in the communities outside the Monument. These include … visitor contact stations in Stoneville, Greendale, and Floodwater.*

List other planning documents relevant to project (e.g., County General Plans, Corridor Management Plans, etc.) and direction they provide.

The *Lane County, Utah General Plan*, adopted June 1998, calls for placing a visitor contact station in Greendale (page 58).

What are the primary land uses in the vicinity of the proposed project?

Residential, commercial, and agricultural. The project site is located on property in the heart of the community where an apple orchard once was. Portions of the orchard still exist to the south and a field used to graze livestock is to the west. Residences and small businesses are located in close proximity to the property. HWY 98, a primary State Highway, runs along the eastern side of the property.

What is preliminary cost estimate for the proposed project?

$250K

Identify potential funding sources.

- BLM Capital Improvement funds
- National Scenic Byway grants
- National/Utah Heritage Area grants
### ACTIVITY LEVEL PLANNING

<table>
<thead>
<tr>
<th>Name of Activity Level Plan</th>
<th>Date Plan Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenic HWY 98 Corridor Management Plan</td>
<td>April 2002</td>
</tr>
</tbody>
</table>

List Activity Level Plan decisions relevant to proposed project.

Locate a visitor contact station in Greendale, Utah, along HWY 98 that provides restrooms, interpretation about local history, orientation and visitor information about BSNM and other area attractions, and spaces for both the community to gather as well as visitors to picnic.

List Management Constraints e.g., VRM Class, Special Designations, etc.) of project area.

This segment of HWY 98 is designated as the Sandstone State Scenic Byway, and it is included in the nationally designated Utah Mormon Pioneer Heritage Area.

### PROJECT PLANNING

<table>
<thead>
<tr>
<th>Project Lead/Project Manager</th>
<th>Date Project Planning Initiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susan Jones, Landscape Architect</td>
<td>July 2003</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Planning Team Members</th>
<th>NEPA Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nancy Grassley – DO Engineer</td>
<td>Jeff Black – Outdoor Recreation Planner</td>
</tr>
<tr>
<td>Jeff Black – Outdoor Recreation Planner</td>
<td></td>
</tr>
<tr>
<td>Steve Diller – Interpretive Specialist</td>
<td></td>
</tr>
</tbody>
</table>

How will public scoping be provided?

A public design workshop, letters to interested publics, and city council meetings.

**PREPARE SITE ANALYSIS.**

Describe the project area’s NATURAL ENVIRONMENT.

- **Elevation**: ~5800’
- **Fire Danger**: Danger is low, site has access to City Fire Protection (hydrants).
- **Geology**: site is located in an old farm field...few to no geologic concerns.
- **Paleontology**: site is located on highly disturbed soils, thus potential for paleontology is insignificant.
- **Prevailing Winds**: From the north
- **Soils**: Heavy clay
- **Temperature/Precipitation**: Average high temps-low 90s. Average low temps – high teens. Most of the precipitation comes in the winter as snow.
- **Topography**: Site slopes from east to west at about 5% grade.
- **Vegetation**: (including special status species and invasive species concerns)
### Water Resources/Hydrology (including wetlands, riparian, floodplains, water quality, etc.)

Site can connect to City Culinary Water System. Old irrigation ditch runs along edge of property between property line and highway. Virgin River is located several hundred yards to the west of property. Sanitary sewer connection is available.

### Wildlife (including birds and fish)

Nothing of concern to note.

### Other

#### Describe the LANDSCAPE CHARACTER (form, line, color, texture).

This project is located adjacent to an apple orchard on a gently sloping site along HWY 98 in the center of a small Southern Utah community. The Sandy River corridor runs through this narrow valley and is to the east of the project site. The community is enclosed by low golden gray cliffs to the west and rounded gray shale hills to the east. The valley floor is filled with residential development, farm fields, and orchards. Predominant vegetation includes shade trees and grasses (lawns and fields) in the developed areas, and pinyon/juniper and sagebrush stands in the periphery where development has not occurred. The color palette of the area is primarily a range of greens (based on seasonal changes) and tans/grays associated with soils and geology of the Straight Cliffs Formation.

**Form** - Predominant forms are a valley floor surrounded by rounded hills to the west and flat-topped plateaus to the east with isolated rocky outcrops.

**Line** - Predominant lines in this landscape are rounded horizontal and slightly diagonal. Built structures and trees planted for shade or fruit add elements of verticality.

**Color** - Primary colors present include a range of dark to medium greens associated with native vegetation (pinyon/juniper) and cultivated vegetation (agriculture fields of grass/alfalfa, shade and fruit trees) and browns, tans, and grays associated with landform colors of the hillsides, cliffs, and soil.

**Texture** - Overall, the texture of this landscape is moderate, based on the landform and vegetation variety as well as the many structures.

#### Describe the project area’s BUILT ENVIRONMENT.

**Access (Vehicular and Pedestrian)** - HWY 98 runs along eastern edge of property. Parking to be provided within site as well as within highway ROW. City sidewalks are located on the opposite side of the street.

**Existing Structures** - Irrigation ditch and post/wire fence.

**Utility Connections** - Utility connections are available as follows:

- **Electrical** – KG Power
- **Telephone** – Middle South Communications
- **Sewer** – Narrow Valley Sewer District
- **Water** – Greendale City

**Heritage Resources** (archaeology, historic sites, etc.) - None found when surveyed but site is located adjacent to an apple orchard that was planted more than 50 years ago.

### Describe the ARCHITECTURAL CHARACTER.

A variety of residential housing styles are present in Greendale, though none provides a style to emulate. A historic rock church in nearby Mt. Carmel provides an interesting architectural style to note. See attached image.

### Prepare USER ANALYSIS.

#### Describe the SOCIOECONOMICS.

**Use and Users** – Site to be utilized by highway travelers as well as local residents. Local residents will likely use the site for longer periods of time (community/scout picnics, etc.), as opposed to the highway travelers who will stop to use the restrooms and have a quick picnic.

**Permitted Activities** (Recreation, Grazing, etc.) - N/A

**Population** - ~350 ppl. In Greendale, 100Ks of travelers on highway annually.

**Economics** – Local area: Median household income - ~$50K/year. Per capita income - ~$24K/year (2008 data). Construction, service, and agriculture are primary industries.
Other – Travelers from across U.S. and internationally utilize this stretch of highway, primarily when traveling the “Full Circle of National Parks.” It connects several national parks and monuments in the Four Corners region. It is also a primary travel corridor for heavy truck traffic between SLC and Phoenix.

Describe the DESIGN PROGRAM.

- Shade shelter with picnic tables
- Interpretive exhibits appropriate for location
- Information kiosk
- Public restrooms
- Lawn area
- Parking
- Landscaping

What is the PRELIMINARY BUDGET?

$250K - BLM Capital Improvements funds.

What are the GREEN BUILDING goals and requirements of the project?

- Utilize native plants to conserve water.
- Utilize water-efficient restroom fixtures.
- Minimize lighting to protect night skies.

What are the proposed PROJECT SCHEDULE milestones?

- Complete site specific NEPA – Fall 2004
- Complete Final Design – Fall 2005
- Procurement – Winter 2005
- Construction – Summer 2006
- Open for public use – Fall 2006

Who will prepare the Project Data Sheet and submit it for funding?

George Richards, DO Engineer

4 CONCEPTUAL DESIGN

<table>
<thead>
<tr>
<th>Design Lead</th>
<th>Date Conceptual Design Initiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben Smith, Architect, National Operations Center (NOC)</td>
<td>November 2004</td>
</tr>
</tbody>
</table>

Project Design Team Members

- Susan Jones, Landscape Architect
- George Richards, DO Engineer
- Jeff Black – Outdoor Recreation Planner
- Nancy Grassley – Interpretive Specialist

Detail the PROJECT PROGRAM for the FINAL CONCEPTUAL DESIGN.

- Large shade shelter with picnic tables
- Historic grinding wheel and associated interpretive panel
- BSNM-provided 4-panel interpretive kiosk
- Double-stall flush toilet building
- Small lawn area
- Display gardens and fruit trees around perimeter
- Interior site parking
- Dutch oven pit
- Picnic sites outside shelter

What is the COST from the Class C Cost Estimate?

$310K

Is the project registered for any GREEN PROGRAMS? If so, which one(s)?

4 GQBE PROJECT WORKSHEET (SAMPLE)
If needed, has NEPA been finalized and provided to Design Lead? If so, when and by whom?

Yes, January 2005, by Jeff Black

How will the project be constructed?

By contractor

Conceptual Design Approved by: John Brown, BSNM Manager
Date FINAL CONCEPTUAL DESIGN Approved: March 2005

**DESIGN DEVELOPMENT**

<table>
<thead>
<tr>
<th>Design Lead</th>
<th>Date DESIGN DEVELOPMENT PLAN Initiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben Smith, NOC</td>
<td>April 2005</td>
</tr>
</tbody>
</table>

Note when DESIGN REVIEWS are conducted:

- 30% Review - July 2005
- 65% Review - October 2005
- 95% Review - May 2006
- 100% Review - September 2006

Were GQBE PRINCIPLES and other design parameters incorporated into design?

Yes

If needed, has VALUE ENGINEERING been completed?

N/A

If project is to be constructed via contract, what type and bid method?

8A

What is the COST from the Class B Cost Estimate?

$240K

List any LOCAL PLANNING / ZONING / PERMITTING COORDINATION needed.

- Greendale City Council review
- Sewer connection
- Water connection
- Electricity connection
- Department of Transportation – encroachment permit

**CONSTRUCTION DOCUMENTS (CDs)**

<table>
<thead>
<tr>
<th>CDs Prepared by</th>
<th>Date CDs Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben Smith, NOC</td>
<td>March 2007</td>
</tr>
</tbody>
</table>

What is the COST from the FINAL Cost Estimate?

$235K
Are GREEN PROGRAM submittals needed? If so, which ones and when submitted?

N/A

<table>
<thead>
<tr>
<th>CDs Approved by</th>
<th>Date CDs Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susan Jones, Landscape Architect</td>
<td>April 2007</td>
</tr>
</tbody>
</table>

**PROCUREMENT / CONSTRUCTION**

What are the FUNDING CODES?

LLUT090000.IB0000.21100000.JC230000

<table>
<thead>
<tr>
<th>CONTRACTING OFFICER (CO)</th>
<th>Date PURCHASE REQUEST (PR) submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary Adams, NOC</td>
<td>July 2008</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTRACTING OFFICER REPRESENTATIVE (COR)</th>
<th>PROJECT INSPECTOR (PI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>George Richards, DO Engineer</td>
<td>Susan Jones, Landscape Architect</td>
</tr>
</tbody>
</table>

Bid Dates:

- Date for Pre-Bid Meeting: September 2008
- Date for Pre-Bid Meeting: October 2008

Construction Contract Awarded to

Delmar Construction LLC

What is the final BID AMOUNT with CONTINGENCIES?

$215K

Date for Pre-Work Meeting?

- January 2009

Contract schedule dates?

- January 2009 to July 2009

Date facility COMPLETED

July 2009

Walk-through/Punch list items

- Re-grade edges of parking area
- Install entrance and exit signs
- Replace two trees that were damaged

What were the results of FINAL COMMISSIONING/TESTING?

All systems were functioning per specifications.

Were AS-BUILT DRAWINGS and Operations and Maintenance Manuals provided upon completion? To Whom?

Yes, as-builds and O&M manuals were provided to George Richards and Susan Jones.
### POST-CONSTRUCTION / MAINTENANCE

<table>
<thead>
<tr>
<th>Date facility ACCEPTED by Government</th>
<th>Facility accepted and approved by</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2009</td>
<td>George Richards, DO Engineer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date FACILITY open for use</th>
<th>Date of CELEBRATION EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2009</td>
<td>September 2009</td>
</tr>
</tbody>
</table>

Provide a brief PERFORMANCE REVIEW of project construction.

Work completed on schedule and with quality workmanship.

List SPECIAL MAINTENANCE REQUIREMENTS for the life of project.

None

List the WARRANTIES and their expiration dates associated with project.

See attached.

Was project submitted for USGBC LEED or other green building rating programs? If so, what level did it achieve?

No

Was project entered into Facilities Asset Management System (FAMS)? By whom?


What was the final construction PROJECT COST (Design, Construction, and Project Management)?

$260K
APPENDIX C - RECREATION SETTING CHARACTERISTICS MATRIX

**PHYSICAL** - Qualities of the Landscape

<table>
<thead>
<tr>
<th></th>
<th>Primitive Classification</th>
<th>Back Country Classification</th>
<th>Middle Country Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remoteoess</td>
<td>More than ½ mile from either mechanized or motorized routes.</td>
<td>Within ½ mile of mechanized routes.</td>
<td>Within ½ mile of four-wheel drive vehicle, ATV and motorcycles routes.</td>
</tr>
<tr>
<td>Naturalness (landscape texture form, line, color)</td>
<td>Undisturbed natural landscape.</td>
<td>Natural landscape with any modifications in harmony with surroundings and not visually obvious or evident (e.g. stock ponds, trails).</td>
<td>Character of the natural landscape retained. A few modifications contrast with character of the landscape (e.g. fences, primitive roads).</td>
</tr>
<tr>
<td>Visitor Facilities</td>
<td>No structures. Foot/horse and water trails only.</td>
<td>Developed trails made mostly of native materials such as log bridges. Structures are rare and isolated.</td>
<td>Maintained and marked trails, simple trailhead developments and basic toilets.</td>
</tr>
</tbody>
</table>

**SOCIAL** - Qualities Associated with Use

<table>
<thead>
<tr>
<th></th>
<th>Primitive Classification</th>
<th>Back Country Classification</th>
<th>Middle Country Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contacts (avg. with any other group)</td>
<td>Fewer than 3 encounters/day at camp sites and fewer than 6 encounters/day on travel routes.</td>
<td>3-6 encounters/day off travel routes (e.g., campsites) and 7-15 encounters/day on travel routes.</td>
<td>7-14 encounters/day off travel routes (e.g., staging areas) and 15-29 encounters/day on travel routes.</td>
</tr>
<tr>
<td>Group Size (average - other than you own)</td>
<td>Fewer than or equal to 3 people per group.</td>
<td>4-6 people per group.</td>
<td>7-12 people per group</td>
</tr>
<tr>
<td>Evidence of Use</td>
<td>No alteration of the natural terrain. Footprints only observed. Sounds of people rare.</td>
<td>Areas of alteration uncommon. Little surface vegetation wear observed. Sounds of people infrequent.</td>
<td>Small areas of alteration. Surface vegetation showing wear with some bare soils. Sounds of people occasionally heard.</td>
</tr>
</tbody>
</table>

**OPERATIONAL** - Conditions Created by Management and Controls over Recreation Use

<table>
<thead>
<tr>
<th></th>
<th>Primitive Classification</th>
<th>Back Country Classification</th>
<th>Middle Country Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access (types of travel allowed)</td>
<td>Foot, horse, and non-motorized float boat travel.</td>
<td>Mountain bikes and perhaps other mechanized use, but all is non-motorized.</td>
<td>Four-wheel drives, all-terrain vehicles, dirt bikes, or snowmobiles in addition to non-motorized, mechanized use.</td>
</tr>
<tr>
<td>Visitor Services (and information)</td>
<td>No maps or brochures available on-site. Staff rarely present to provide on-site assistance.</td>
<td>Basic maps, staff infrequently present (e.g. seasonally, high use periods) to provide on-site assistance</td>
<td>Area brochures and maps, staff occasionally (e.g. most weekends) present to provide on-site assistance.</td>
</tr>
<tr>
<td>Management Controls</td>
<td>No on-site posting/signing of visitor regulations, interpretive information or ethics. Few use restrictions.</td>
<td>Basic user regulations at key access points. Minimum use restrictions</td>
<td>Some regulatory and ethics signing. Moderate use restrictions. (e.g. camping, human waste).</td>
</tr>
</tbody>
</table>
### RECREATION SETTING CHARACTERISTICS MATRIX

<table>
<thead>
<tr>
<th>Front Country Classification</th>
<th>Rural Classification</th>
<th>Urban Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within ½ mile of low-clearance or passenger vehicle routes (includes unpaved County roads and private land routes).</td>
<td>Within ½ mile of paved/primary roads and highways.</td>
<td>Within ½ mile of streets and roads within municipalities and along highways.</td>
</tr>
<tr>
<td>Character of the natural landscape partially modified but none overpower natural landscape (e.g. roads, structures, utilities).</td>
<td>Character of the natural landscape considerably modified (agriculture, residential or industrial).</td>
<td>Urbanized developments dominate landscape.</td>
</tr>
<tr>
<td>Rustic facilities such as campsites, restrooms, trailheads, and interpretive displays.</td>
<td>Modern facilities such as campgrounds, group shelters, boat launches, and occasional exhibits.</td>
<td>Elaborate full-service facilities such as laundry, restaurants, and groceries.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Front Country Classification</th>
<th>Rural Classification</th>
<th>Urban Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-29 encounters/day off travel routes (e.g., campgrounds) and 30 or more encounters/day on travel routes..</td>
<td>People seem to be generally everywhere.</td>
<td>Busy place with other people constantly in view.</td>
</tr>
<tr>
<td>13-25 people per group.</td>
<td>26-50 people per group.</td>
<td>Greater than 50 people per group.</td>
</tr>
</tbody>
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<table>
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<tr>
<th>Front Country Classification</th>
<th>Rural Classification</th>
<th>Urban Classification</th>
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<tbody>
<tr>
<td>Two-wheel drive vehicles predominant, but also four wheel drives and non-motorized, mechanized use.</td>
<td>Ordinary highway auto and truck traffic is characteristic.</td>
<td>Wide variety of street vehicles and highway traffic is ever-present.</td>
</tr>
<tr>
<td>Information materials describe recreation areas &amp; activities, staff periodically present (e.g. weekdays &amp; weekends).</td>
<td>Information described to the left, plus experience and benefit descriptions, staff regularly present (e.g. almost daily).</td>
<td>Information described to the left, plus regularly scheduled on-site outdoor demonstrations and clinics.</td>
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<tr>
<td>Rules, regulations and ethics clearly posted. Use restrictions, limitations and/or closures.</td>
<td>Regulations strict and ethics prominent. Use may be limited by permit, reservation, etc.</td>
<td>Enforcement in addition to rules to reduce conflicts, hazards, and resource damage.</td>
</tr>
<tr>
<td>Cumulative Project Costs</td>
<td>Project Lead*</td>
<td>Value Analysis</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------</td>
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<tr>
<td>&lt; $250K</td>
<td>Qualified Staff</td>
<td>Recommended</td>
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<tr>
<td>$250K-$500K</td>
<td>Senior Staff</td>
<td>Recommended</td>
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<td>$500K-$1M</td>
<td>Engineer/Architect</td>
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<td>$1M-$2M</td>
<td>Licensed Eng/Arch</td>
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<tr>
<td>&gt;$2M</td>
<td>Certified Project Manager</td>
<td>Required</td>
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Note:
* “Architect” includes Landscape Architects. Certified Project Manager includes FAC and PMP credentials

** “Green” as per the Sustainable Buildings implementation Plan:...projecys which have 5,000 sq ft or more, will obtain a third party certification to meet the requirements of a multi-attribute green building standard or rating system developed by an American National Standards Institute (ANSI) accredited organization. (LEED, Green Globe, etc.).
APPENDIX E - REFERENCES


City of Scottsdale, Arizona. Scottsdale Desert Parks Design Guidelines.

City of Scottsdale, Arizona. Scottsdale Desert Parks Design Guidelines.


Mitchell, John G. National Geographic, August 2001: 2-29. The Big Open; Going Public With the Public Lands.


Tisdale, Mary E., and Booth, Bibi 2003. Adventures on America’s Public Lands


APPENDIX F - COMMON ACRONYMS

ACEC   Area of Critical Environmental Concern
A/E   Architectural Engineering
AMP   Asset Management Plan
ATV   All-Terrain Vehicle
BLM   Bureau of Land Management
CCC   Civilian Conservation Corps
CD   Construction Document
CO   Contracting Officer
COTR   Contracting Officer’s Technical Representative
CMA   Cooperative Management Agreement
EO   Executive Order
FAC-P/PM   Federal Acquisition Certification for Program and Project Managers
FAMS   Facilities Asset Management System
FAR   Federal Acquisition Regulation
FLMPA   Federal Land Policy and Management Act
GHG   Greenhouse Gas
GIS   Geographic Information Systems
GLO   General Land Office
GPS   Geographic Positioning System
IMBA   International Mountain Bicycling Association
KOP   Key Observation Point
LAC   Limits of Acceptable Change
LEED   Leadership in Energy and Environmental Design
LNT   Leave No Trace
MP   Management Plan
MTB   Mountain Bike
NEPA   National Environmental Policy Act
NHPA   National Historic Preservation Act
NLCS   National Landscape Conservation System
NOC   National Operations Center
NPS   National Park Service
OHV   Off-Highway Vehicle
O&M   Operations and Maintenance
PDS   Project Data Sheet
PI   Project Inspector
PL   Project Lead
PM   Project Manager
RFP   Request for Proposals
R&PP   Recreation and Public Purposes Act
RAMP   Recreation Area Management Plan
RMP   Resource Management Plan
ROW   Right-of-way
ROS   Recreation Opportunity Spectrum
SRP   Special Recreation Permit
TMO   Trail Management Objective
TTF   Technical Trail Feature
USFS   United States Forest Service
USGBC   U.S. Green Building Council
USGS   United States Geologic Survey
VRM   Visual Resource Management
We would like to recognize that only through the past efforts, drive, and commitment of many former BLM staff over the years, the seeds of momentum for this effort were cultivated. In November 2005, a group of BLM engineers, outdoor recreation planners, architects, and landscape architects met at the National Training Center in Phoenix to discuss how best to embark on an initiative aimed at addressing the quality of BLM’s built environment. We were joined at that meeting by USFS colleagues who had been instrumental in producing the US Forest Service Built Environment Image Guide and who graciously shared lessons learned regarding both to its preparation as well as its implementation in the field. By week’s end, after much conversation and engaged dialogue, the resounding conclusion was that an comprehensive reference was indeed needed to guide and facilitate the development of facilities that are sustainable, reflect a positive image for the agency, and address specifically, the planning and design process for BLM’s built environment. All agreed that the outcomes of such an effort would help bridge the gap between existing policies and requirements, while fostering improved communication between those involved in the facility development process.

SPONSORS
It was recognized early on that the support and contributions of the two programs most directly involved in BLM facility development and management (Engineering and Recreation) were critical to the success of this effort. Without the continued support of these individuals and the programs they oversee, this document could not have been produced.

Coppa, Luis  Chief, Engineering and Asset Management  WO  BLM
Dean, Nancy  Chief, Protection and Response Group  WO  BLM
Grant, Corey  Division Chief of Business Resources  WO  BLM
Hart, Bob  Chief - Architecture and Engineering Branch  NOC  BLM
Jarvis, Jeff  Division Chief of the National Landscape Conservation System  WO  BLM
Ratcliffe, Bob  Division Chief, Recreation and Visitor Services  WO  BLM
Roberson, Edwin  Assistant Director of Renewable Resources and Planning  WO  BLM
Rountree, Carl  Assistant Director of National Landscape Conservation System and Community Partnerships  WO  BLM
Tenney, Andy  Branch Chief, Recreation and Visitor Services  WO  BLM
Velasco, Janine  Assistant Director of Business and Fiscal Resources  WO  BLM

CORE TEAM
From the onset, this Core Team of BLM staff, which represent program areas involved in facility development as well as a range of planning and design professions, led, organized, facilitated, and secured funding to support the production of BLM Guidelines for a Quality Built Environment (GQBE). The commitment and dedication of this small group were instrumental to the successful creation of the Guidelines and their work will lay the foundation for a legacy of quality BLM facilities.

Angus, Allysia  Project Lead, Landscape Architect/Land Use Planner  UT  BLM
Busch, Tom  Chief, Planning, Design, and Construction Section  NOC  BLM
Cownover, Brad  Landscape Architect  NOC  BLM
Duncan, Trent  Mechanical Engineer  UT  BLM
Hart, Bob  Chief - Architecture and Engineering Branch  NOC  BLM
McCarty, John  Chief Landscape Architect  WO  BLM
Montoya, Victor  Engineering Program Manager  WO  BLM
# EXTENDED TEAM

As the GQBE was developed, many individuals throughout BLM, as well as from other agencies and the private sector, shared their time, energy, ideas, suggestions, and feedback. The dedication of these individuals helped ensure that this document is relevant, easy-to-use, and attractive. More so, the Extended Team’s vast knowledge and experience were critical to developing a reference that provides the appropriate level of guidance to assist those planning, designing, constructing, leasing, and maintaining BLM facilities. The net benefit of this will influence decisions that result in BLM facilities that are sustainable, attractive, and cost-effective. The Extended Team members represent a range of professions, locations, and expertise. Each team member provided valuable and insightful comments and suggestions for inclusion in the GQBE based upon their unique backgrounds and levels of expertise. Their insights were shared during face-to-face workshops held in New Mexico, Nevada, Oregon, or Colorado, as well as via document reviews at the various review submittal phases.

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As is often the case, it is necessary to turn to those who have come before when tackling an effort of this magnitude. From the very beginning, even when discussions about whether preparing guidelines for BLM facility development was a worthwhile effort, we turned to our U.S. Forest Service colleagues for advice. They had prepared the USFS Built Environment Image Guide several years before and it was the catalyst for BLM to consider attempting a similar project. We continually looked to them as the GQBE was drafted, and they graciously shared their experiences, ideas, suggestions, and lessons learned. We also looked to private sector professionals and retired BLM staff who had worked on a variety of successful BLM projects in the past. The experience and expertise shared by these individuals is reflected in the design and content of the Guidelines.

<table>
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The work associated with developing the GQBE could not have been completed solely by an internal BLM team. Early in the process, BLM contracted with Belt Collins West in Boulder, Colorado, to assist with the organization and preparation of the GQBE. Throughout the process of developing the Guidelines, Belt Collins facilitated workshops, developed content, synthesized a vast array of information about BLM policy and programs, organized thousands of images, and produced beautiful graphics to share concepts that couldn’t be explained with imagery or text alone. Belt Collins’ professionalism, talent, and commitment to this project are reflected on each of the pages of this document.

Gibney, Tom  Landscape Architect  Belt Collins  Private
Griffin, Jay    Landscape Architect  Belt Collins  Private
Hoogerwerf, Katy  Landscape Architect  Belt Collins  Private
Mather, Mimi  Landscape Architect  Belt Collins  Private
Moss, Ann  Landscape Architect  Belt Collins  Private
Scott, Ian  Landscape Architect, Illustrator  Belt Collins  Private
Shupe, Bonie  Graphic Designer  Belt Collins  Private